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MY DEAR F.—In my letter from this place of the 31st December,* I gave you by way of Episode, an account of my adventures on the Halifax river, but I never told you when I got here, or how I got here from St. Augustine, both of which matters I know you are so desirous of being acquainted with, that I expect a good scolding in the very next letter I receive from you for my omission. In future, the understanding between us must be, that when I choose to write Episodes, you must let me write Episodes, confiding always in my intention to give you as regular an account of my movements as circumstances will admit of. I am aware that very few travellers have been in this part of the world with the views that have brought me here, and in the hope that the details I am about to give you will be acceptable, I shall now take my start from St. Augustine, from whence I wrote you Dec. 7†.

After remaining in this place about three weeks, we proceeded through the inlet that divides St. Anastasia's Island from the main, to the plantation of General Hernandez, about thirty-five miles from St. Augustine. On our way, we passed at Matanza Inlet, an old fort built by the Spaniards, now a ruin; here we turned into a creek, fed by the salt water tides, until we reached the landing place at the General's. Our hands took the baggage to the house, and when we dismissed them, they determined to return, although the night was dark, and the wind quite adverse.

* See March Number, 1832. † See February Number, 1832.

General Hernandez was from home on our arrival, but his Lady received us very politely. I had soon the pleasure of shaking hands with my worthy host, and became established in his family for ten days. On Christmas day we left this delightful abode, and proceeded on foot fifteen miles to J. T. Bulow's, Esq. of Bulowsville, by invitation. A wagon was sent for our baggage, and horses for ourselves were offered at the same time, but it was not my desire to give unnecessary trouble, and above all upon an occasion when I was glad to see the country in as much detail as possible, and anxious to avail myself of every occasion to get new birds.

Mr. Bulow's house is large and good, and nothing could be more amiable than his reception of me. He placed every facility and convenience at my disposal that I could have occasion for. During my whole long stay with him, there was no abatement of his kindness, of his unremitted efforts to make me comfortable, and to promote my researches. I shall ever feel grateful to one of the most deserving and generous of men. I have already narrated to you the excursion down the Halifax river, and shall now give you an account of an interesting trip I made into the interior, to a place of some celebrity in this country, called Spring Garden.

I left my friend Bulow's plantation, with the intention of going westwardly towards the river St. John's; Mr. B. gave me a seat in his gig. Mr. M'Murtrie, a Scotchman in his employment as an Engineer was with us, and was in fact to be my guide to Spring Garden. We passed several plantations, but at none of these did we remain a longer time than just to quench our thirst.

A horse was lent me at Mr. M'Dermot's, a sugar planter, and I leapt on the saddle as freely as if the world was all my own. We arrived at a Mr. M'Craigh's, of course a Scotchman, whom I had seen at St. Augustines, and who received us with all imaginable kindness. He lives about 15 miles from Bulowville. I saw the whole of his new born plantation, the landing on his creek, his boats, &c. &c. We slept here, and at daylight on the 7th we left this plantation, to proceed westwardly through the wilderness towards the Spring and Garden, here so renowned, and of which I intend giving you a favourable description.

Nothing could be finer than the weather, not so the roads;

for no sooner had we left the King's Road,* than we entered first a thick scrub, succeeded by a still thicker mass of low palmettoes, extending about three miles, where we came in full view of what in this very interesting peninsula, goes by the expressive name of a *Pine Barren.*

I wish I had the talent to paint what a Pine Barren in the Floridas is. May God continue his blessings to me, and may he ever preserve you from having any thing to do with a Pine Barren in the southern part of the Floridas!

The sky was pure, the pine trees far apart, beneath our feet nothing but sand and tall grass. The general growth low palmettoes tangled together, and the mere Indian path we were following, was so narrow, and of so doubtful a character, that at every step which our Floridian poneys took, we felt as if we certainly had at length got into the vicinity of the far famed end of the world, and our expectations were of course screwed up accordingly.

These Pine Barrens differ from all those I had seen before. The sand is thinly covered with a very poor kind of yellow pine, growing from amongst tall rank grass as far as the eye can reach on all sides. The country is perfectly flat, and subject to general inundations after the constant rains that fall in this latitude, in early spring. At such times it is impossible to cross these barrens, and even now, after a period of extremely dry weather, we were frequently in mud and water up to the girths of the horses. Large patches of grass presented themselves here and there, like so many worn out meadows or prairies, then again came the pine barrens. Whenever the surface became hollower, it was covered with cypress trees hung with Spanish moss, growing out of the deep black mud, and overgrown with all sorts of scrubby bushes of the magnolia family.

We crossed in succession the heads of three branches of Haw Creek, from a quarter to half a mile in width: we got through them with some difficulty. After traveling about twenty miles, at the rate of two and a half miles an hour, a great change took place; the country became suddenly more elevated and undulating. The timber also changed to red oaks, magnolias, a few live oaks and pines, millions of molehills, called here sala-

* This road, which runs parallel with the coast, was opened when East Florida belonged to the Crown of Spain.

mander and gopher (*geomys bursarius*) burrows, offered themselves to our eyes. Our horses occasionally trod in them, and stumbled at the risk of our necks. We now saw beautiful lakes of the most transparent water, and passed through a series of them on each side of us. As we proceeded, these lakes increased in number and in dimensions. Some of them are several miles in length and breadth, and have from seven to twenty feet in depth of the purest water, and abound with excellent fish. *No birds about them*, at this season at least, their banks being entirely destitute of grasses bearing food.

Many tortoises were seen basking in the sunshine, all of which plunged into the water at our approach. Not a sign of man did we see during our whole day's journey; searcely a bird, and not a quadruped—nay, not even a rat (geomys bursarius). A more destitute and poor country is scarcely to be conceived of, than the section we crossed this day between the Halifax river and the sources of the St. John. The distance about thirty miles, and from Mr. Bulow's about forty.

We at last perceived the track of living beings, and soon after saw the negro huts of the plantation now owned by Col. Rees. Never did traveller approach Timbuctoo in Africa, with greater satisfaction and more curiosity, than I did the plantation of Col. Rees. Even our Indian horses seemed to have the same feelings, for they trotted on towards the principal dwelling with great alacrity.

We found the Colonel at home, and were kindly received, refreshments were presented to us, and our horses taken to the stable. The proprietor purchased this estate a few years ago, and is now only beginning to plant sugar cane upon it. The soil is much the same as that on Mr. Bulow's plantation, and is that which substantially constitutes the swamp land in Florida. The plantation is spread on the margin of a lake, now called *Rees's Lake;* of which I shall speak hereafter, and the whole appears under the best of treatment.

Dinner over, the Col. took us to the spring, and when I reached it, I was certainly surprised, but I must try to describe it, and to give you my own ideas of the nature of this curious outlet of subterranean waters.

The spring itself forms a circular cove of about sixty feet in diameter, from the centre of which it throws its water with so

much force, as to prevent any swimming object from approaching it, except fish. The head of the jet rises about an inch and a half above the common surface, forcing the water away all around, after the manner of a whirlpool, yielding meantime millions of dead periwinkle (Lymnea,) shells, pieces of stone, of wood, gravel, &c. &c.; all of which are forced on the surrounding shore, where they have accumulated perhaps for many centuries, and where they are concreted into curious solid masses. The water is beautifully transparent, of a sea green colour, but strongly impregnated with sulphur, which gives it a nauseous smell, particularly disagreeable to myself.

The same shells which are thrown up at the spring, are found in each of the lakes of which I have spoken. These lakes seem to be formed from atmospheric waters, which in the rainy seaseasons flow into these reservoirs or basins, which ultimately communicate with St. John's river. I procured a bottle full of the water of this curious spring for analysis. The waters of the spring, after running about two hundred yards through the woods, flow into Rees's Lake; the stream thus formed is called Spring Garden Creek. The depth of the water at the spring, when low, is near seventeen feet; the channel of the creek immediately below it is said to be sixty feet deep, but becomes shallower as you advance towards the entrance of Rees's Lake, and so very rapidly, that on reaching this lake the bed becomes suddenly an extensive mud flat over the whole floor of the lake, with, at this moment, not more than fifteen inches of water; beneath which are deposits from the discharges of the spring, and a soft silt or thin mud to the depth of four and a half feet, lying upon hard white sand. When this silt is stirred up by the oars or otherwise, it is of a dark green colour, smells powerfully of wet gunpowder, and effervesces constantly, even when untouched. Our boat was hauled across this mud flat lake into the continuation of the creek.

Before we proceed farther, I would observe that the inspection of the ground around the spring brought me acquainted with a very curious set of phenomena, from which it would appear that the present spring is comparatively recent, and only one of a long succession of jets that have once been in activity, but which are now filled up with the fragments of shells, wood, gravel, &c. they have ejected. During the rainy season, when

the ground is saturated with water, it issues from various vents, distant from one to three hundred yards from each other; the intervening distances appear to be filled up with the fragments I have before alluded to, and with silt. The fragments now accumulated by the jet in activity, are evidently approaching it, in time it will be choked up, and then, I suppose, the pressure operating upon the general filtration from all these lakes and the surface, will force a new jet up in some weak place. The orifice of the present one is about two and a half feet square; its velocity in the rainy season is about three feet per second, which gives near 500,000 gallons per hour. The cove, from which this jet rises, is, as I have before stated, about sixty feet in diameter.

We found the creek covered with the common nymphæa, in a depth varying from fifteen inches to five feet of water. On the north east side is a great cypress swamp, and on the opposite side marshes, and islands covered with pines, live oaks, and sour orange trees. Alligators in abundance, many water fowls, such as ibis, hanningas or snake birds, galinules, coots, ducks, cormorants, fish-hawks, &c. &c. We proceeded down this Spring Garden Creek, with much difficulty, for about two miles and a quarter, and reached Dexter's lake, but passed a mud flat at its entrance so very shallow, that I doubted. at one time, if we should be able to effect a passage. Here the mud was literally filled with muscles (Unio,) resembling those of the Ohio river. Our negroes brought up from eight to ten each time they put their hands into the mud, so that I collected a great many, out of which I selected about sixty. Two other kind of shells were found here, and of these also I preserved a sufficient quantity; but mark! the water was now of a different colour; from a transparent sea green, it had become a dark chestnut, although still limpid. The lake had an uniform depth of about five feet, and we proceeded across its north east corner without difficulty; it is about eight miles long, and about three miles broad, without islands, and bordered like the rest with ample marshes. The continuation of the creek which we now entered leads to the opening of Woodruff's Lake, which itself empties its own dark waters into the St. John's. We could not reach the bottom of the mud of this creek; we pushed our oars into it, up to the very ends with great ease. This was a cause of great sorrow and disappointment to me, for I shot the male and female of a

new species of ibis; they fell not far from us upon the tangled nymphæ, but such was the state of the mud, that it was impossible to recover them. Being only a few yards distant from us, and quite near enough to ascertain the extent of my loss—I submitted to lose a fine pair of a new species, the which if I ever fall in with it again, I shall call *Tantalus* fuscus.

The chain of creeks and lakes I am now describing empties itself into the St. John's, about sixteen miles south of and above Lake George. We reached the borders of Woodruff's Lake about one P. M., and being fatigued and hungry, we landed on a small island of a few acres, covered with a grove of sour orange trees, intermixed with a few live oaks. The oranges were in great profusion on the trees—every thing about us was calm and beautiful and motionless, as if it had just come from the hand of the Creator. It would have been a perfect Paradise for a poet, but I was not fit to be in Paradise; the loss of my ibis made me as sour as the oranges that hung about me. I felt unquiet, too, in this singular scene, as if I was almost upon the verge of creation, where realities were tapering off into nothing. The general wildness, the eternal labyrinths of waters and marshes, interlocked and apparently never ending; the whole surrounded by interminable swamps—all these things had a tendency to oppress my spirits, notwithstanding some beautiful flowers, rich looking fruits, a pure sky, and the ample sheets of water at my feet. Here I am then in the Floridas, thought I, a country that received its romantic name from the fragrant odours wafted from the orange groves, to the boats of the first discoverers, and which from my childhood I have consecrated in my imagination as the garden of the United States. A garden where all that is not mud, mud, mud, is sand, sand, sand; where the fruit is so sour that it is not eatable, and where in place of singing birds and golden fishes, you have a species of ibis that you cannot get when you have shot it, and alligators, snakes and scorpions.

Mr. Bartram was the first to call this a garden, but he is to be forgiven, he was an enthusiastic botanist, and rare plants, in the eyes of such a man, convert a wilderness at once into a garden. Another traveller, however, who was in the government employ, has written in a manner that cannot fail to mislead those who have never visited the country. He says that the Pine Bar-

rens of which I have spoken, would make superb sugar plantations, and has given a list of fruits and plants that grow in the Floridas; but he has not stated at how great a sacrifice of labour, property, and comfort, any cultivation of this kind can be carried on, except in a few well selected situations. On the great scale, this kind of cultivation cannot be applied, for the pine barrens are so very flat, that the only drainage to which they can be submitted—at least for the twenty-five miles I observed them,—is natural evaporation.

Of the climate, too, it may be remarked, that, notwithstanding its average mildness during winter, it is far from being as pleasant as the winter climate of the northern States. The steady, dry, bracing frosts of the north, are congenial to health and good spirits, and all that is required, is to keep the body warm by exercise and clothing. Here, in the winter season, we have the blossoms open at mid-day, butterflies on the wing, alligators out of their holes, birds singing and disporting, snakes sliding through the woods, tortoises basking in the sun, the thermometer at summer heat, and yet when night comes, frost sets in, and frequently before morning almost every thing is enclosed in an icy garment. During the summer,—I am told,—that in the interior, from whence I am now returned, the heat is excessive, and the pestilential miasma of the stagnant marshes, lakes, and torpid pools with which the country abounds, renders a residence here dangerous to the most hardy constitutions. I am afraid that those who had the good luck to sell the country to our government for hard money, have made more by it, than will ever be made again. I wish it were otherwise for the sake of the excellent and most hospitable men I had the good fortune to become acquainted with here, and the parting with whom was the only cause for regret which I had on leaving East Florida.

I was greatly surprised to hear the accounts of those gales that desolate the peninsula during spring, summer and autumn. I have been assured that at times the plantations have been almost destroyed, together with the greatest part of the crops. I have seen on Mr. Bulow's plantation, the remains of twenty of his houses thrown down last June, and his own mansion was so much endangered, that he found it expedient to leave it, and remove to his kitchen, which is a low building contiguous to it. During the summer, the country bordering the ocean, is refresh-

ed by the sea breezes usually called the trade winds, from ten A. M. until sunset; this is a great blessing in a flat country, when the thermometer stands at 88° Fahr.: but it does not penetrate the interior of the peninsula; the heat there is as intolerable as the Miasma.

When we had eaten our humble repast at the sweet little Orange Grove Island, we left it "alone with its glory," but not without a name. It was determined, nolens volens, that it should be called Audubon's Island, on the St. John's river. Lat. 29° 42′.

On going and returning from Spring Garden, I observed many plants new to me, especially a parasite, of which I collected some fine specimens, somewhat resembling the pineapple plant, growing in some instances forty feet high on the east side of cypress trees, of which the roots were in the water. I saw many daisies resembling the common European daisies, and large patches of heath, the first I have observed in the United States. The excursion out and home, occupied four days.

I am now going to prepare for my return to St. Augustine: the schooner Spark is there, bound for the heads of St. John's river, and as I am furnished with an excellent letter to the Commander from the Secretary of the Treasury, I shall hope to be permitted to embark on board of her. Adieu, my dear F. until I give you an account of this new expedition.

J. J. AUDUBON.

REMARKS ON THE ARTICLE CONTAINED IN SILLIMAN'S JOURNAL FOR APRIL 1832, ENTITLED "MR. LEA ON THE NAIADES."

Sir—I venture to offer to you some observations on the very encomiastic review of "Mr. Lea on the Naiades," in the American Journal of Science and Arts for April 1832. Mr. Isaac Lea's papers were published in the transactions of the American Philosophical Society. That institution had been at a great expense to get up these papers, which, on account of their numerous showy plates, have attracted much attention. The liberality which the society thus exercised, imposed upon the author the duty of making his papers as perfect as possible, and at any rate free from all reproach. It was alike due from him to do

so, to all those naturalists whose papers might hereafter be presented to that society with the same expectations.

There are in the city of Philadelphia several experienced Conchologists, and numerous fine collections of shells. I would name here Mr. Hyde, Mr. C. A. Poulson, Mr. Conrad, Mr. Mason, Mr. Nicklin, Dr. Green, Mr. Hembell, Mr. Pierpont, Dr. Griffith, Mr. Wardle, Mr. Wistar, Mr. Philips, and many others. To such persons, every thing that is done in Conchology is a matter of great interest, and as the unios of our country have been brought into notice but of late years, most of our Conchologists have had something to do, more or less, with the establishment of the species, and all of us—for I have studied Conchology likewise—are, at any rate, well acquainted with the history of the classification of those shells.

From the language used in Professor Silliman's Journal, he has, as it would appear, purposely placed himself before the public, as the writer of the review in question. He refers to the labours of other Conchologists as being "*contained in the pages of this Journal.*" Expressions of this kind often repeated, justify his being held as the responsible person, even if he is not the writer; for no prudent editor permits—at least I must think so—his contributors to personify him, without reasons that are approved by his judgment, of whatever calibre that may be. Editors who have every opportunity of rejecting what is inconsistent with that extensive and sound information, that spirit of candour, which every man who assumes to pass judgment in matters of science, is supposed to possess, to some extent at least, by his readers, can set up no defence for misleading the public, by saying that important papers, affecting the interests of science, and the reputation of individuals, were admitted because they were not read, were not understood, or because it was not convenient to reject them.

I shall apply the remarks I am about to make, indifferently to the writer and to Mr. Isaac Lea.

The review commences with stating, that "the mollusca of our seaboard have hitherto *attracted little attention*, except for purposes of food. We never see their dwellings employed as articles of fancy or decoration, with the exception of the common scallop, whose unpolished exterior must first be concealed by a coating of varnish and a border of gilding, before it is

thought fit to enter into the construction of a card rack. Even the conchologist is forced to summon both his philosophy and patriotism, ere he can admit the *pale purpura*, the *homely venus*, and the *uncoloured pecten*, to take their respective places in his cabinet, by the side of their gaudy congeners from foreign seas."

Now this is not only altogether untrue, but is so prodigiously silly as to expose altogether the writer's want of conchological knowledge. The mollusca of our seaboard have attracted a great deal of attention, and numerous collections of them are to be seen in various parts of the United States. Between Cape May and Rhode Island alone, our marine shells, far from being limited, as the writer observes, "to a comparatively small number of species," amount already to 72 species; further south to Florida we may safely add 130 additional species, making upwards of 200 species. Where is the collection that does not possess the fine *Pecten magellanicus*, and *P. nodosus;* the beautiful *Fasciolaria distans*, and *F. tulipa;* the *Tellina alternata* of Say, the *Oliva literata* of the same naturalist, and the delicate and finished little *O. mutica?* Is the *Venus grata*, so homely? Did the writer ever see the *Astarte castanea*, the *Lutraria lineata*, the Nucula *lamatula* of Say, the *solecurtis Costatus*, the *Scalaria* 3 species, the *Lima glacialis*, the *Solen ensis*, the *Solen caribeus*, &c. &c.? Did he ever see any of those fine marine shells so admirable for their beauty, and the vividness of their colours? Or rather when he has glanced over our collections, has he not taken them for what he calls "gaudy congeners from foreign seas," believing that the pale purpura of the Nantucket beach, and the few weather-beaten dead valves he has occasionally picked up on other strands, were all the tribute ocean could pay to the representative of so many American naturalists. What becomes of the assertion of this writer, that our mollusca have attracted little attention, "*except for purposes of food?*" In what cellar is his extensive cabinet of oysters and clams to be found?

At page 170, Sil. Jour. Ap. 1832, it is stated, "The first persons who occupied themselves with the scientific examination of this family, were Messrs. Barnes and Say." Dr. Hildreth is next mentioned, "but the papers of Mr. Isaac Lea, in the transactions of the American Philosophical Society, stand *pre-eminent*

among all the labours of this kind, both for extent and nicety of discrimination."

The decision thus made ex-cathedra, will probably, as I shall take occasion to show, not be acceded to by practical conchologists. The kind of pre-eminence due to Mr. Lea, will perhaps more clearly appear when it has been shown with what sort of a spirit Mr. Lea and his eulogist have displayed their conchological information. But first I must go a little back.

In the early part of this year, Mr. C. A. Poulson published the translation of "a Monograph of the fluviatile bivalve Shells of the River Ohio," which has been already noticed in your Journal (Feb. 1832.) In the dedication to William Hembel, Esq. Mr. Poulson says,

"In publicly addressing to your notice a translation of Prof. Rafinesque's Monograph of the bivalve Shells of the river Ohio and its tributaries, it seems proper to remark, that this paper was originally published at Brussels, in September, 1820, in 'les Annales Generales des Sciences Physiques.' Extra copies were transmitted to the author in this country, who distributed them among individuals, and the libraries belonging to scientific institutions in this city and elsewhere. It is therefore *a curious circumstance* in the history of American Conchology, that this singular evidence of the author's acumen, zeal and industry, should thus have existed for more than eleven years, while but *four* of the numerous species (above sixty) discovered and described by him, are known by his names, either in the works of American authors, or in our collections."

It is to be remembered, that Mr. Lea's papers were all published some time previous to the publication of Mr. Poulson's translation. We have seen that this gentleman considered Mr. Lea's silence respecting Rafinesque's discoveries made in 1820, as a *curious circumstance*, and now in April, 1832, some months subsequent to the appearance of Mr. Poulson's translation, we find Mr. Isaac Lea's eulogist stating—"The first persons who occupied themselves with the scientific examination of this family (Unio) were Messrs. Barnes and Say." The name of Rafinesque, even all notice of his Monograph and Mr. Poulson's translation of it, are here carefully excluded. I ask, quo animo, Mr. Isaac Lea and his eulogist have done this? Is this intelligent, is this honest, is this what is due to science and the public? Is this a dubious way to obscure the reputation of another, or a sure way to pile loads of darkness upon your own?

The true order, as to time, of the labours of our conchologists

in the Unios, is Say, in 1818, who described a few species in the American edition of Nicholson's Encyclopedia. Rafinesque, who in 1820 described more than sixty species; Barnes, who followed in 1823, and as to Mr. Isaac Lea, who has had every opportunity of profiting by the labours of his predecessors, and of doing justice to them, he first dates in 1827. Nevertheless, in Silliman's Journal, it is now stated, that Lea "*is pre-eminent* among all the labours of this kind," whilst all notice of Rafinesque and and his sixty species is entirely excluded.

At page 170, it is said, "the number of species put forth by Mr. Lea, as new, is so great, as at first to excite the suspicion, that many of them must eventually prove mere varieties of one another." At page 10, of Mr. Poulson's translation, we have the following passage:—"A number of species, so great as to quadruple this genus, presenting infinite anomalies in form and structure, is a very remarkable fact, and occasioned doubts respecting the annunciation of its characters." Considering that Mr. Lea's eulogist had never heard of Mr. Rafinesque's monograph, there is a surprising accordance in the passages, which are founded in truth. It is the general opinion of conchologists that a very large proportion of these species are mere varieties, and that any list of species brought forward at this early period of the study of our Unios, will bear a reduction of at least one half.

Mr. Lea, himself, page 2 of his paper, read before the American Philosophical Society, Nov. 2, 1827, says—"The constant and perplexing changes which the species of this genus assumes, have led even the accurate Lamarck into the error of describing several varieties as different species, and it is not without due hesitation and caution that I am induced to add the present (six species.) It has been doubtful with some conchologists, whether the species of the genus Unio are not the mere varieties of one species."

"The gradations are so interesting, and at the same time so perplexing, that he (the naturalist) is lost in the maze of their changes, and he seeks almost in vain to draw a distinctive line between them; for even the tuberculated shells sometimes pass by almost insensible gradations into smooth ones. Although this line may not always be satisfactorily drawn, I think their divi-

sion into species should be retained, if it were only for the sake of system."

If they are not species but varieties, and are to be called so only for system's sake, why say that Lamarck is in error for having done the same thing? But where are the proofs of Lamarck's errors? That eminent conchologist has described forty-eight species of Unio; twenty-two of these are American, and five are without habitats. He is constantly receiving shells from the four quarters of the globe, and how can Mr. Lea, who has not the examples before him, assert that he is in error? Since, however, Mr. Lea does not scruple to criticise one whom he calls *accurate*, he may well consent to have the number of his discoveries among these *mazes and insensible gradations*, reduced at least one half. I shall venture to apply this restriction to an enumeration of fifty-one species by name, which at page 172 of the review, Mr. Lea is stated to have added. Giving him the advantage of the odd number, and calling the number twenty-six, I shall state without hesitation that *twenty-five* of that number have been previously described by other conchologists; these are the *Unio occidens, U. oriens, U. trapezoides, U. multiplicatus, U. ellipsis, U. irroratus, U. planulatus, U. pustulosus, U. pustulatus, U. soleniformis, U. perplexus, U. parvus, U. pileus, U. Æsopus, U. sulcatus, U. pyramidatus, U. lacrymosus, U. asperrimus, U. brevidens, U. varicosus, U. circulus, U. patulus, U. rubiginosus, U. donaciformis, U. securis.*

It would be too tedious a task to give all the details which belong to this extensive piece of "*nice discrimination;*" the inspection of numerous collections, including his own, would be necessary to the complete establishment of the fact. My own opinion is grounded upon actual comparison, and I here express it as my belief, in a deliberate manner. I shall nevertheless give some of the grounds for it, which will perhaps gain me credit for what at present I can only assert. Before these details are entered upon, it may be as well to examine what Mr. Lea's claims are to that character for "*extent and nicety of discrimination*" which his eulogist claims for him. In doing this, perhaps, we shall find the measure of discrimination possessed also by his eulogist. At page 173 it is said, "with respect to Mr. Lea's distribution of the naiades into the two genera *Unio* and *Symphynota*,—the distinctive character for the former being *valves free*, and for the latter,

valves connate,—it appears to us a *real improvement*, and one for which he deserves the thanks of all conchologists. In the same page it is said, "he (Lea) proposes also, the fusus fluviatilis of Say, as a new genus; for the reason that the canalifera are universally pelagian shells, while this is a fluviatile species, and therefore falls within the melaniana. He calls it the IO FUSIFORMIS." Let us examine what this real improvement is. The family of the NAIADES consists of fluviatile shells. Lea divides it into two genera, *unio* and *symphynota*. The distinctive character of the first is *valves free*, of the last *valves connate*, or *not free;* the testaceous covering of the shell being extended over the ligament, and uniting the valves, so that they cannot be separated without a fracture of the testaceous covering. Lea then substitutes for Say's *fusus fluviatilis*, a new generic term, *io*, and converts Say's generic term into a specific one, changing the *fusus fluviatilis* of an old discoverer into *io fusiformis*, "*satisfied that no genus should contain pelagian and fluviatile shells in common.*" [Vide page 138, paper read before A. P. S. 1831.]

In the meantime, Mr. Lea and his eulogist, wrapped up in their *real improvement*, could not see that all this machinery was held together with a rope of sand, and that at the least touch the genus Symphynota must all fall to pieces, since several pelagian genera, such as Pinna, Mytilus, Modiola, Hyalea,* &c. &c. are *connate*, as well as the unios, upon which the genus Symphynota is founded. This is double suicide on the part of Mr. Lea, both of his *real improvement*, and of his claims to *nice discrimination;* he revolutionizes Mr. Say's labours, upon the express ground that "no genera should contain both pelagian and fluviatile shells," whilst he himself creates a genus Symphynota for connate shells, which are both marine and fluviatile. His eulogist calls this real improvement. Those who understand conchology, find in Rafinesque's genus *Metaptera*, all the sufficient characters for the genus Lea would create, and much more distinctive than those implied by the term Symphynota, which is proper only to a family. I shall now proceed to specify, in a more detailed manner, the causes for striking from Mr. Lea's new species, twenty-five out of twenty-six.

Unio occidens.—Lea. Tr. A. P. S. vol. 3, plate x. fig. 16, is

* "The valves of the Hyalea are connate."—*Demontfort*, 1808.

U. *ventricosus* of Barnes, in Silliman's Journal for May, 1823. This is confirmed by Mr. Say, in Am. Conch. No. 4, for March, 1832. Mr. Say's is a finer example, and the figure much better executed. There can be no mistake here. Lea says the occidens differs from the ventricosus in not being globose over the umbones. This may be in some shells.

U. *oriens.*—Lea. Tr. A. P. S. 4. P. vi. fig. 5, is the U. *dehiscens* of Say, in N. H. Disseminator, Oct. 7, 1829, and since in Am. Conch. No. 3, P. 24. It is amusing to see how ingeniously Lea has managed this plagiarism in the description. *Say*, in his description, says, "Transversely much elongated." *Lea*, has, "Shell longovate transverse." *Say*, "Thin." *Lea*, "Substance of the shell very thin." *Say*, "pale yellowish brown, radiate, with abbreviated lines of green." *Lea*, "yellowish, with oblique interrupted green rays."

U. *trapezoides.*—Lea. Tr. A. P. S. 4. P. 3. fig. 1, is the U. *interruptus* of Say in Transyl. Jour. 4. p. 525, and since in Am. Conch. No. 4.

U. *Multiplicatus*—Lea. Tr. A. P. S. 4. P. 4. fig. 2, is the U. *heros* of Say in Am. Conch, No. 2. Mr. Say appears disposed to abandon his name of *heros*, in favour of Barnes's *undulatus*, which he thinks identical. The shells are, however, distinct; and Mr. Say's candour is not to operate to his prejudice. Lea does not even mention Say's *heros*, but avails himself of Mr. Say's hesitation, to occupy his place, by substituting *multiplicatus*. We have here another travesty. *Say.* Unia *heros.* Sept. 23, 1829. "Transversely oval, with large distinct undulations three or four in number, directed towards the anterior margin, and not proceeding directly from the umbo: hinge margin compressed." *Lea.* U. Multiplicatus, 1831. "Obliquely transverse, undulated, except near the anterior margin—undulations diverge from the umbonial slope. Compressed towards basal and posterior margins."

U. *Ellipsis.*—Lea. Tr. A. P. S. 2. P. 4. fig. 4, is U. *olivaria* of Rafinesque. (Translation of the monograph.) We have here another instructive specimen of the art of appropriating other men's thoughts. *Rafinesque.* U. *olivaria*, September, 1820. "Shell thick, somewhat ventricose, oval, elliptical, epidermis wrinkled, olive coloured, nacre white, iridiscent." *Lea.* U. Ellipsis, Nov. 1827. "Shell very thick, ventricose, margin ellip-

tical, epidermis reddish brown, surface somewhat wrinkled.—Nacre pearly white, silvery, and iridiscent," &c.

U. *irroratus.*—Lea. Tr. A. P. S. 2. P. 5. fig. 5, is U. *stegaria.* var of Rafinesque. Trans. Mon. p. 51.

U. *planulatus.*—Lea. Tr. A. P. S. 3. P. 9. fig. 13, is U. *fasciolaris* of Rafinesque. Monog. p. 36. Dr. Hildreth, in Silliman's Journal, vol. xiv. No. 2, Jan. 1828, has overlooked Rafinesque's prior right to this species, and has described it under the name of U. *phaseolus*, which Mr. Say, erroneously, has recognised in his Am. Conch. No. 3. Pl. 22. Barnes also, in Silliman, vol. vi. for May, 1823, seems to have indicated this shell in his U. *mueronatus.* Mr. Lea who is a man of "nice discrimination," and who has severely criticised Dr. Hildreth's labours, thought that as this last gentleman had overlooked Rafinesque's *fasciolaris*, it would not be very criminal in him to overlook the *phascolus*, and substitutes *planulatus* for the name of the original discoverer!

U. *circulus.*—Lea. Tr. A. P. S. 3. P. 9. fig. 14, is U. *striata*, var *rosea* of Rafinesque, Monog. p. 50. Dr. Hildreth named this shell in Silliman's Jour. Jan. 14, 1828, U. *orbiculatus*, which Lea reproaches him with, saying it is another name for U. *torsus* of Rafinesque. Having thus settled the matter, he proceeds to describe the shell, which he declares to be a new species, U. *circulus, nobis!* In Wood's conchology, this shell is called U. *rotunda*, whereupon the eulogist, thinking to do wonders, says, "U. *rotundata*, Lamarck, the *circulus* of Lea," not dreaming that if Lamarck had named it, Lea had no right to name it over again. Such is the way in which some people are served by their friends. In describing this shell, Lea has done nothing more than amplify what Rafinesque had said in 1820. Rafinesque. Unio *striata*, var *rosea*, Monog. 1820. "Shell thick, ventricose, rounded inferiorly, with striated wrinkles, epidermis brown anteriorly. Nacre white, the variety roseate." Lea. U. circulus, 1827. "Shell round, very ventricose, transversely, wrinkled, epidermis anterior to the umbonial slope, dark brown, posterior, light yellow brown. Nacre white, pearly, rarely tinted with rose in the centre."

U. *patulus.*—Lea. Tr. A. P. S. 3. P. 12. fig. 20, is the U. *cuneata* of Raf. Monog. p. 53.

U. *rubiginosus.*—Lea. Tr. A. P. S. 3. P. 8. fig 10, is U. *flava* of Rafinesque, Monog. p. 38.

U. *donaciformis.*—Lea. Tr. A. P. S. 2. P. 4. fig. 3, is U. *truncata* of Rafinesque, Monog. p. 31 ; the following abstracts of the respective descriptions, will convince every one of this, without comparing the shells. U. *truncata.* Raf. 1820. "Shell slightly thick, apices prominent, the posterior face truncated, epidermis olive. Nacre bluish white. "U. donaciformis, Lea, 1827." Shell *not very* thick, beaks slightly elevated, angulated by an oblique carina passing to the beaks to the posterior margin. Epidermis olive—nacre pearly white." It will be remembered that these claims of Mr. Lea, to these species, were asserted at a time when Mr. Rafinesque's Monograph, which was published in 1820, at Bruxelles, was lost sight of, and that it was only revived by a translation, in 1832.

U. *securis.*—Lea. Tr. A. P. S. 3. P. 11. fig. 17, is U. *depressa* of Rafinesque, Monog. p. 34.

U. *pustulosus.*—Lea. Tr. A. P. S. 4. P. 7. fig. 7, is U. *bullata* of Rafinesque, Monog. p. 43.

U. *pustulatus.*—Lea. Tr. A. P. S. 4. P. 7. fig. 9, is U. *nodulata* of Rafinesque, Monog. p. 42.

U. *soleniformis.*—Lea. Tr. A. P. S. 4. P. 10. fig. 17, is U. *monodonta* of Say, Am. Conch. No. 1. pl. 6.

U. *perplexus.*—Lea. Tr. A. P. S. 4. P. 17. fig. 42, is U. *gibbosa.* Rafin. Monog. p. 56.

U. *pileus.*—Lea. Tr. A. P. S. 4. P. 18. fig. 47, is U. *flexuosus* of Rafinesque, Monog. p. 41.

U. *sulcatus.*—Lea. Tr. A. P. S. 3. P. 8. fig. 12, is U. *obliquata* of Rafin. Monog. p. 46.

U. *pyranidatus.*—Lea. Sup. to Tr. A. P. S. 4, P. 16. fig. 39, is U. *rubra* of Rafin. Monog. p. 55.

U. *lacrymosus.*—Lea. Tr. A. P. S. 2. P. 6. fig. 8, has been by some thought the U. *metanevra* of Rafin. Monog. p. 39. Lea has mistaken the *metanevra* of Raf. for his U. *quadrula.* Monog. p. 42.

U. *asperrimus.*—Lea. Tr. A. P. S. 4. P. 5. fig. 3, is the U. *rugosus* of Barnes, in Sil. Jour. vol. vi. Jan. 1823.

U. *brevidens.*—Lea. Tr. A. P. S. 4. P. 6, is evidently an accidental variety of the U. *depressa* of Rafinesque.

U. *varicosus.*—Lea. In the same paper is a variety of the U. *esopus* of Green in Conts. to Mac. Lyc. July, 1827. Professor Green's paper is very judicious and instructive. This is the only

species (U. *esopus*) he has ventured to name, yet the eulogist of Mr. Lea puts U. *esopus*, of professor Green, among the species added by Mr. Lea.

I could multiply instances of this kind, but it is unnecessary. Mr. Lea seems to think that to possess a shell which has been before described, and to invent a synonyme for it, is fair game if it can pass undiscovered. He seems also to overlook the consideration that molluscous animals of the same species, are sometimes large, sometimes small; there are giants and dwarfs, probably, in all the natural species. Thus his U. *parvus*, also previously described by Barnes, may belong to a species which another person with equal propriety may call U. magnus; because it is the largest shell of the kind he has met with; and at any rate U. parvus becomes without distinction the moment a smaller race of unios is found.

When Mr. Lea's papers first appeared, it was perceived at once that they had been drawn up without a proper regard to the rights of others. They were permitted, however, to pass over in silence; it was not thought advisable to draw the animadversions of the public upon the transactions of a respectable society, that had given such evidence of its desire to enlarge the boundaries of our conchological knowledge. When, however, these objectionable papers are again obtruded upon the public, and studiously paraded in a scientific journal, it becomes a duty to speak out, and to point out to the American Philosophical Society, which has acted with so much liberality, the very serious demerits of these papers. I regret that the task has fallen upon myself; it would have been more agreeable to me to have had as many occasions to commend, as I now find to censure. I speak for the sake of truth alone, my own claims to distinction in this branch of natural history, being in no way whatever, compromised by what Mr. Lea has written. That he has been unjust to those who preceded him, and to whose labours he is indebted in the greatest degree for the information he possesses, is unquestionably true; and he will have reason to regret that he has not taken a more secure method of raising himself a reputation. No man deserves to succeed, whose first object is to obscure the labours of those who have preceded him. Neither has he sufficient originality in what is his own, to sustain him against the resentment many will bear towards him, and the general

feeling that will soon exist against him as a naturalist. Mr. Say deserved to be treated, for many reasons, with the greatest respect, and to have received from him the ample acknowledgments which other naturalists are happy to make to his great merits. Rafinesque has been a perfect mine to Mr. Lea. Barnes can be so no more. The labour which he has bestowed on his papers has been thrown away; they will soon be of no more value than picture books.

As to the eulogist of Mr. Lea, he, it is evident, knows nothing of conchology. It is easy, from a few notes, to draw up an eulogium, and quite as easy to fall into continual errors. No man can long write intelligently on a subject he does not understand. In this instance the habit of eulogy has constantly led the writer too far, even where, without scientific information, he ought not to have erred. When he says, speaking of Mr. Lea's plates, that "they certainly surpass every thing of the kind yet done in the United States," it is due to truth to say it is not so; that many of Mr. Say's figures are better drawn, better coloured, and are truer to nature. I would also mention Mr. Conrad's beautiful figures, if I were not satisfied that the eulogist is beyond the reach of any arguments I can offer to him. I regret, sincerely, that it is so, and that I should be compelled to express my dissatisfaction with the loose and very injurious manner, in which the branches of natural history are treated in the New Haven Journal.

I am, it appears, not alone in this. The review of a late translation in your Journal, of the *regne animal*, has excited a great deal of attention. The Journal of Professor Silliman has been, for a long time, the only scientifical periodical to which we have been accustomed to look for correct information; there is a feeling abroad that will cause this to be done with less confidence. Editors who reside in unfavourable situations, far from the busy current of human affairs, and whose time is too often filled to repletion with the discharge of those more serious and exacting duties belonging to the instruction of collegiate youth, cannot devote much of their time to practical investigations in the branches of natural science. Institutions, situated as Yale college is, are capable of nourishing profound and contemplative minds, of producing learned theologians, and acute metaphysicians, but naturalists cannot be produced there. To become a

naturalist, a man must be where multitudes congregate, where things that are new and rare in nature, are constantly tending. He must have the most imaginable free access to all these things, whether in public or in private; and he must be a free man, so far as to be able to command his own time for occasional personal investigations at a distance. Then comes the very general correspondence he must establish with the uninitiated, and with those who know more than himself. Men of this kind, gradually become the repositories of an immense number of facts; and if they have the talent of arranging them naturally and lucidly, so as to show the progress men are making, or ought to make, in the knowledge of nature, their opinions are respected, and they give them with a becoming confidence.

We have many very clever men in our colleges, who in addition to their other attainments, are, according to the degree of their opportunities, accurate naturalists. Most of these men are silent—restrained by a strong sense of that deficiency, which want of intercourse with men and things always generates in ingenuous minds. It is the misfortune of those who are in a false position, that conceiving themselves obliged to play that part which belongs to men of greater discipline, they render their own deficiencies the more conspicuous, giving the same degree of confidence to the wise and the ignorant, hoping their good intentions will atone for their want of intellectual power. It is in this way that a Journal, once respectable in the eyes of men of science, has become a receptacle for things stale and without flavour, where fossil coal plants are turned into petrified rattlesnakes; a translation warmly recommended to the public as *very faithful and able*, which has been exposed in a very distressing manner; and where pretensions that will not endure a ray of investigation, are eulogized as the perfection of knowledge.

INVESTIGATOR.

M'MURTRIE'S TRANSLATION OF THE REGNE ANIMAL.

Sir,—The remarks which you have appended to my review of Dr. M'Murtrie's first volume of his translation, will, I hope, produce the effect you good naturedly intended they should. As to the pain which my strictures may give him, it will be but

temporary, whilst the errors and omissions of his work—leaving out of sight the injustice he has done to naturalists who have not deserved it at his hands—would be permanently injurious to the progress of knowledge, if they were permitted to pass unobserved. It would be superfluous in me to enter into an explanation of the motives which have induced me to expose the defects I have found in the work. If it had been worthy of the original, I should have commended it with all sincerity to many who are desirous of acquiring instructive books on natural history: to know how far I might commend it, I purchased it, and having given it a faithful examination, I proceed to give a true account of it, not after the illiberal manner of some reviewers, who for the sake of showing how much they can wound the feelings of others, insinuate imperfections they are not prepared to prove, but by laying the facts before my readers that they may judge for themselves. I have been the less scrupulous at doing this, having had many occasions to perceive that the translator has not hesitated to be unjust to others, even to his author; and if any motive to whet me on to the task was wanted, I should have found it in the unblushing and egregious puffing the work has got in Silliman's Journal. I dare say it is a pleasant thing to be paid for praising works you are not required to read, and which it is waste time to read when you do not understand them. I am not one of those who make a traffic of commendations of this kind. I have read the original of this work, have studied it, and have compared this translation with it, and having some feeling for those students in natural history, into whose hands it was likely to fall, I communicate that information to them, which I know would be invaluable to myself under similar circumstances. As long as you are disposed to give my remarks a place in your independent journal, I shall from time to time communicate them to you, leaving to the public to give their intrinsic value to my criticisms, from the facts contained in them, and from the apparent spirit with which they are brought forward.

The remarks I am now about to make have been suggested by the second volume.

Cuvier, at page 16, [8vo. Paris 1829,] states that the Saurians "ont le cœur composé, comme celui des Cheloniens, de deux oreillettes, et d'un ventricule quelquefois divisé par de scloisons imparfaites." Farther on, at page 24, he refers, in a note to a

memoir on the Circulation of Reptiles, by an American Naturalist: had the translator taken the trouble to consult the memoir, he would have seen that Cuvier had there found reasons for modifying his opinion on the structure of their organs of circulation. If he has consulted it why has he suppressed all notice of the discoveries of one of his countrymen?

Cuvier, at page 24, speaking of the Genus Monitor, says, "ils ont des dents aux deux manchoires, et en manquent au palais." *They have teeth in the two jaws, but want them in the palate.* The translator says, at page 18, "they have *two* teeth in both jaws, but none in the palate." Now, to whatever this blunder may be owing, we must remember that this translation was not made for men already learned in natural history; such persons would undoubtedly prefer to acquire the original to any translation whatever. The only claim to notice which this book has with the public, is that it is a "*very faithful and able translation*,"—as Professor Silliman has thought proper to call it—by the aid of which American students could acquire exact notions of the Zoological branch, and compare the descriptions in the translation with the specimens to be found in the collections. How can Dr. M'Murtrie excuse himself then for putting our young naturalists to the expense and trouble of rummaging all the unlabelled specimens of our museums, (few of which have any pretensions to scientific arrangement,) for monitors "with *two* teeth in both jaws," when no such animal exists in nature. Every student who has been well grounded in comparative anatomy, is aware that the teeth are the principal characters to be relied on in dried specimens of this genus: thus baffled, he has recourse to other characters, by the aid of which he at last finds out his animal, with *a mouth full of strong conical teeth in both jaws.* These small verbal mistakes, as some persons indulgently call them, are pregnant with important consequences to others.

At page 23, 20th line, we have, speaking of the *Tachydromous*, "Square and carinated scales on the back, under the belly, and on the tail; no collar *nor* femoral pores, but on each side of the anus is a small vesicle opening *by one of the latter.*" Cuvier says, "le collier leur manque ainsi que les pores aux cuisses; mais de chaque coté de leur anus est une petitie vésicule ouverte d'un pore." *They have neither collar nor femoral pores, but on each side of the anus is a small vesicle opened by a pore:* Dr.

M'M. having already stated they were without femoral pores, the words *one of the latter* must refer to anus. These little vesicles then are opened by an anus. This is a precious discovery in physiology!

At page 26, 24th line, we have, "in some species are found femoral pores." Then follows in the original—"L'agame ocellé de la nouvelle hollande," which is omitted in the translation.

Cuvier, at page 39, speaking of the Agama, quotes the Agama vultuosa of *Harlan.* A. N. Sc. Ph. iv. xix. The translator, in a note at the foot of page 29, says, "from the observations of Major L'Conte, it would seem that what is here called the *agama vultuosa*, is the young of another species." He has here shown his total unfitness to judge of this matter. The specimen upon which this species is founded, is preserved in the Cabinet of the A. N. S. of Philadelphia, is not a *young* animal, and cannot be confounded with another species. But what plan of criticism is this that the translator would foist upon his readers —where are Major L'Conte's observations to be found—when did he make them—where—what are they founded upon? Did he ever make any?

After this specimen of intuitive judgment, Dr. M'Murtrie must needs take liberties with Cuvier himself. This great naturalist, who is of course often dependent on the information he receives from persons at a distance, had been induced to suppose from the circumstance of the *Heteredon tachete*, and the *Cenchris Mockeson* of Daudin, being both hognosed snakes, that they were the same animals: he probably had not been made acquainted with the fact, that this last is venomous. Here the translator, with a reckless want of veneration for his author, cannot resist the temptation of elevating a trophy at his expense, and says, "the author, (Cuvier) in this note seems to have confounded three species of serpents, which are indubitably distinct—the *Heteredon*, the *Trigonocephalus tisiphone*, or Mockason Snake, and the Coluber Constrictor, or black snake; but he fails altogether, for the *Trigonocephalus tisiphone*, and the *Mockason Snake* are two distinct animals." It is dangerous to play with snakes unless you know one species from another. The translator has got bit when he least expected it.

He is not more fortunate in rendering the meaning of his author, when he is translating physiological passages. Defi-

ciencies of this kind are glaringly conspicuous, when they come from medical translators. In stating the circulation in Batrachian animals, at page 76, he states that the branchial blood is brought back into an arterial trunk, from whence "arise most of the arteries which nourish the body, and even those which conduct the blood to be *oxygenated* in the lungs." Dr. M'Murtrie, it seems, has to learn that when branchial blood is transmitted, it has already been oxygenated, and need not be carried to the lungs to be oxygenated over again. If he had known any thing of the subject he was translating, it would not be necessary to inform him, that batrachians, when young, have both branchia and lungs, and that the blood, when it has become branchial, wants no further oxygenation. When the branchia are obliterated, the lungs alone perform this function. Why he has so mistated his author, it is impossible to conceive. Cuvier is very clear; he says, speaking of the arterial trunk, "c'est de ce tronc, ou immediatement des veines qui le forment, que naissent la plus grande partie des arteres qui nourrissent le corps, et même celles qui conduisent le sang pour respirer daus le poumon."

The first remark which the translator indulges in, as American editor, upon the Batrachians, is equally unfortunate. At page 79, he appends to one of Cuvier's notes the following remark." ["N. B. This last species (*Rana clamitans. Daud.*) is the young of the *bull frog*, Am. Ed."] They are totally distinct, differing, not only in size and markings, but in their tympani and palatine teeth. One so well acquainted with the little ones among the frogs, must be supposed very familiar with the big ones among the toads, and therefore, at page 83, our translator appends to one of Cuvier's notes, the following gratuitous remark. (Add. *Bufo Americanus.* L. C. Am. Ed.) We never heard of this B. Americanus before, and should be glad to know when or where Le Conte has described it. We imagine Dr. M'Murtrie has no information to give us on that head, and that it is a generous contribution from his own stock of information, intended to compensate to the great toad family for his strange suppression of an American toad, very accurately described by Mr. Say, the *Bufo cognatus.* (Long's Expedition to Rocky Mountains, vol. ii. page 190.) The habits, locality, and characters of this animal are there fully detailed. We had thought that Dr. M'Murtrie, in assuming the character of annotator upon the labours of natu-

ralists, would have embraced so favourable an occasion of doing justice to his own countrymen. The greatest favour they receive from him is in mentioning them very seldom, and it certainly is a favour to be misrepresented as little as possible.

It would extend this communication to an inconvenient length, were I to note all the errors and omissions of this second volume, which contains evidences of great carelessness and unbecoming forwardness, in pronouncing judgment upon matters the translator, evidently, does not understand. At page 119, speaking of the COTTUS, after the words, "The salt water species are more spinous, and when irritated their head becomes still more inflated," there is an omission of this passage "nos côtes en ont deux nommées chaboisseaux, scorpions de mer, &c." Having excluded these trivial names upon the only occasion when it was useful to introduce them, he proceeds, "Such are C. scorpius L; Bl. 40. (The *Father Lasher*, &c.") This vulgar name, father-lasher, is an interpolation of his own. Cuvier having described these two species *Cottus Scorpius*, and *C. bubalis*, says, "La mer baltique en a une troisieme espece distingueé par quatre tubérosités osseuses et cariées sur le crane. (*C. quadricoonis*, Bl. 108." Which passage the translator proceeds to mangle and mistate in the following paraphrase. "C. quadricornis, Bl. 108, (the four horned bull-head,) distinguished by four *quadrate* and bony tubercles. These three species are found in the European seas, the latter, more particularly, in the Baltic." This is a great specimen of what want of knowledge is capable, when backed by presumption. In attempting to recast the whole of Cuvier's very lucid statement, and to supply the passage before omitted, he translates one word erroneously, turning "*cariees*" (carious) into quadrate, and entirely misleading the ichthyologist as to habits, for he says *the three species are found in the European seas, the latter, more particularly, in the Baltic*, when his author had expressly said, that the two first were found on the French coast, and the last in the Baltic sea.

Another instance, of like nature, occurs at page 138. Cuvier, speaking of the Gerres, says, at page 188, "Les GERRES, nob. vulgairement MOCHARRA chez les Espagnols d'Amerique." It is the custom of this naturalist, when he notices one of his own genera or species, to add nob. as an abbreviation for nobis: this no translator has a right to alter; Dr. M'Murtrie, however, trans-

lates the passage "Gerres, *cuv.* Mocharra, in *South America*," diregarding his author, who expressly says, "chez les Espagnols d'Amerique," and forgetting that country is also colonized by Portuguese, and does not entirely consist of South America.

Cuvier, at page 213, speaking of the Stromateus of Linnæus, says, "leur æsophage est armé en dedans d' une quantité d'epines qui tiennent à *la veloutee* par des racines disposées en rayons," which is translated, at page 157, "attached to the *velvet* by radiating roots." The term *la veloutee* is applied to masses of delicate and extremely slender teeth, having a velvetty appearance, which are peculiar to some fishes.

At page 160, is another omission of a whole line on the article *Pteraclis.* "Ce qui leur donne la forme d' une haute voile."

At page 200, speaking of the *cyprinus barbus*, which Cuvier observes is sometimes ten feet long—"dans les eaux claires et vives"—he renders this last phrase, "in clear streams *and fish-ponds.*" These must be famous fishponds!

At page 214, nineteenth line, it is said, "The flesh, (of the Silurus) which is fat, is employed in some places for the same purposes as lard," which is not a translation of the passage in Cuvier. "Sa chair est grasse, et on emploi en quelques endroits son lard comme celui du porc." *Its flesh is fat, and in some places its lard is used like that of the hog.*" Dr. M'Murtrie would find it difficult to persuade his housekeeper that hog's flesh and lard are one and the same thing.

At page 242, describing the *Lepisosteus*, he says, "The snout, formed by the union of the intermaxillaries, maxillaries and palatines with the vomer and ethmoid; the lower jaw equal in length, and the edges of both of them, their whole interior surface being covered with rasp-like teeth, provided with a series of long pointed teeth." This incomprehensible passage stands thus in a literal translation. (Regne animal page 328.) *The Lepisosteus has a snout formed by the union of the intermaxillaries, the maxillaries and the palatines, with the vomer and the ethmoid; the lower jaw is equal to it in length; and both of them, their entire inner surface being bristled over with rasp-like teeth, have, on the whole length of their borders, a series of long pointed teeth.*

The whole Chapter at page 324, on *Gasteropodus Mollusca*, is full of errors. '*La spire* in the original, is rendered indifferently the *spine* or the *Spire:* at page 325, 11th line, the word

'always' is omitted, which destroys the description. At the 32nd line of the same page, we have, "it is observed that the *head* is always on the side opposite to that to which the spire is directed." Cuvier says (Vol. 3. p. 33.) 'On remarque que *le Cœur* est toujours,' &c. at page 326 we have "the mantel is prolonged *in* a Canal" for *into* a Canal. At the 12th line of the same page, we have "position" for "direction." At the 14th "*spine*," for "*spire*." Cuvier vol. 3. p. 64. speaking of the *Bulla Carnosa*, says "son estomac n'est pas plus armé que son manteau." *Its stomach is not more armed than its mantle*, i. e. they are both smooth; which the translator renders thus, "*The only armature of the stomach is the mantle.*" At page 392, speaking of the *Ostracea*, it is said, "In the first subdivision there is nothing but a muscular mass reaching from one valve to the other." Cuvier says, vol. 3 p. "Leur premiére subdivision n' a qu' une masse musculeuse allant d'une valve à l'autre," has only *one* muscular mass, &c. Every one who has seen oysters knows there is something in them besides the muscular part.

As the second vol. of the translation contains no list of errata, I add one to these remarks. It may be useful for a second edition, and even to purchasers of the first.

Page 40, line 17, for '*Lizard Pandang*,' read, '*Pandang Lizard.* Cuvier calls it Pandang lizard, because it is found at Amboyna on the bushes called Pandang.

40, 21, for '*Pandang*,' read '*shore pandang*.'

47, 30, for ('or the Scorpian Lizard. Penn. Am. Ed.') read 'red headed Scorpion of Maryland.'

54, 24, for 'the tympanum,' read 'the tympanal bone.'

55, 4, for 'bunches,' read 'branches.'

56, 8, for 'uniform appearance,' read 'equal thickness.

63, note, for 'Laurentini,' read 'Laurenti.

71, 6, for 'piece,' read 'size.'

72, note, for 'Am. Mus.' read 'An. Mus.'

83, 11, for 'in the tuft of a palm' read 'in palm groves.'

89, 9, for 'Typhus,' read 'typhlus.'

121, 14, for 'the branchia have seven rays,' read 'they have seven rays to the branchia.'

138, 9, for 'tabular,' read 'tubular.'

Page 140, note, for 'uncoloured' read 'discoloured.'
161, line 26, for 'panache' read 'plume.'
189, 17, for 'tursica' read 'turcica.'
195, 11, for 'latter' read 'lateral.'
201, 28, for 'S' read 'C.'
204, 23, for 'inhaling' read 'swallowing.'
207, 30, for 'two' read 'both.'
217, penul. for 'under' read 'on the inner side of.'
217, line 12, for 'they are not eaten,' read 'their flesh is despised.'
252, note 3, for 'Bl. plaguisa,' read '*pl.* &c.'
262, line 8, for 'not,' read 'no.'
264, 15, for 'aguilla, read 'anguilla.'
274, note 3, for 'bad,' read 'bal.'
275, line 18, for 'is,' read 'in.'
279, 8, for 'spinal valve,' read 'spiral valve.'
9, for 'united pancreas,' read 'united conglomerate pancreas.'
280, 23, for 'squatus,' read 'squalus.'
282, 27, for 'but neither of the three pieces compose the operculum,' read 'but there is not one of the three pieces which compose the operculum.'
284, 7, for 'truncated,' read 'truncated at the end.'
idem. for 'under,' read 'above.'
303, line 19, for 'acalepha, read 'acephala.'
321, 16, for 'Elios,' read 'Clio.'
325, 16, for 'spine,' read 'spire.'
331, 5, for do. read do.
16, for do. read do.
342, note. for 'macrée,' read 'nacrée.'
408, line 1, for 'codiform,' read 'cordiform.'
417, 3, for 'lanula,' read 'lunula.'
430, 7, for 'arms,' read 'anus.'
456, 24, for 'azygous,' read 'odd.'
this piece of affectation is repeated at the 27th line. Cuvier, in both instances, says, *nombre impair.*
466, line 23, for 'valve,' read 'vulva.'

Having waded through this unpleasant task, I close my remarks upon the second volume. I have taken the trouble to

refer to all the pages, your readers can examine for themselves, and judge of the value that ought to be attached to Professor Silliman's remarks on matters of science, who has proclaimed magna voce, in his Journal, that

"Dr. M'Murtrie is entitled to the thanks of the cultivators of natural history, for his *very faithful and able translation* of this most perfect system of Zoology. The publication of the present work, we are confident *will form an era in this country.*"—*Silliman's Journal*, V. 21, p. 388.

A SUBSCRIBER.

SYNOPSIS OF THE TRILOBITES OF NORTH AMERICA,

In which some new Genera and Species are proposed. By Jacob Green, M. D. Professor of Chemistry, &c.

THE following synopsis is only the precursor of a more extended work on this subject, and which is now nearly ready for the press. All the species will be illustrated, by exact models, in plaster of paris, instead of the usual drawings or representations on paper; so that every copy of the book will be accompanied by a set of the casts. Naturalists being thus furnished with *fac similies* of the objects described, will be enabled to correct, for themselves, any errors committed by the Author.

Genus Calymene—*Brongniart.*

C. Blumenbachii—*Brong.*

Clypeo rotundato, tuberculis sex distinctis in fronte; oculis in genis eminentissimis; corpore tuberculato.

C. Callicephala—*Green.*

Clypeo antice attenuato, figura illiformi in fronte depicta; oculis minimis; abdomine quatuordecim articulis; corpore plano.

C. Selenecephala—*Green.*

Clypeo antice rotundato; margine omni valde incrassato; prominentia frontali utrinque trituberosa; corpore tuberculato.

C. Platys—*Green.*

Clypeo antice rotundato—prominentia frontali utrinque quatuor tuberculis; articulis viginti duobus; corpore expanso.

C. Microps—*Green.*

Clypeo antice subattenuato; oculis minimis in lateribus capitis; abdominis articulis a 14 ad 18; corpore depresso.

C. Anchiops—*Green.*

Clypeo antice caudaque postice rotundatis; oculis proximis, magnis, exsertis; articulis viginti duobus; corpore plano.

C. Diops—*Green.* Fig. 2.

Clypeo lobato, plano: rugis tribus in lateribus frontis; tuberculis oculi formibus eminentissimis et duplicibus; articulis octodecim; cauda rotumdata.

C. Macropthalma—*Brong.*

Clypeo antice caudaque postice attenuatis; oculis magnis, exsertis.

C. Bufo—*Green.*

Clypeo rotundato, convexo, punctato; abdominis articulis sexdecim; cauda attenuata; corpore plano.

Genus Asaphus—*Brongniart.*

A. Caudatus—*Brunnich—Brong.*

Clypeo antice subrotundato, postice valde emarginato, angulo externo in mucronem producto; oculis exsertis, conicis, truncatis, distincte reticulatis; post abdomine in candam membranaceam acutam extenso.

A. Selenurus—*Eaton.*

Cauda semilunari costis angustis, valde distinctis; abdominis articulis duodecim; copore convexo.

A. Pleuroptyx—*Green.*

Corpore depresso; cute coriacea, tuberculis minimis; costis striatis; cauda acuta, brevique.

A. Wetherilli—*Green.*

Clypeo portice arcuato, sulcato; abdominis articulis duodecim; cauda vix membranacea; cute coriacea vix punctata.

A. Hausmanni.—*Brong.*

Cauda rotundata; cute coriaoea, tuberculis minimis spinulosis tecta.

A. Micrurus—*Green.* Fig. 3.

Cauda attenuata, acuta; corpore valde convexo; costis striatis; parte marginali vix membranacea.

A. Limulurus—*Green.*

Cauda longa, spina munita sicut in limulo; costis abdominis in spinis, retrorsum flexis, desinentibus.

A. Laticostatus—*Green.*

Cauda prælonga, pars ad marginem vix membranacea; tuberculis minimis; costis latis, convexis, et valde distinctis.

Genus Trimerus—*Green.*

T. Delphinocephalus—*Green.* Fig. 1.

Clypeo semilunari, antice compresso; oculis minimis, eminen tissimis; articulis duplicibus vix lobatis; canda attenuata; corpore tuberculato.

Genus Cryptolithus—*Green.*

C. Tessellatus—*Green.* Fig. 4.

Clypeo rotundato, fronte valde convexo, capite antice semicirculari, margine tessellato, ornato.

Genus Dipleura—*Green.*

D. Dekayi—*Green.* Fig. 9. fig. 8. caput.

Clypeo lunato punctato; abdomine quatuordecim articulis duplicibus vix lobatis; cauda suborbiculari, limbo lato convexo integerimo; oculis oblique deflexis.

Genus Isotelus—*Dekay.*

I. Gigas—*Dekay.*

Clypeo antice ovato, acuminato, punctato; cauda orbiculari; limbo lato; articulis abdominis octo.

I. Planus—*Dekay.*

Clypeo antice caudaque postice rotundatis; articulis octo; corpore depresso.

I. Cyclops—*Green.* Fig. 7.

Clypeo antice attenuato, plano; oculis rotundis, proximis; cauda ovita, acuminata.

Genus Triarthrus—*Green.*

T. Beckii—*Green.* Fig. 6.

Cauda subrotunda, bipunctata; articulis abdominis tribus, absque lobis lateralibus consuetis, sed lobo arcuato utrinque apposito.

Genus Paradoxus—*Brongniart.*

P. Boltini—*Bigsby.* Fig. 5.

For a description of this species see the fourth volume of the Journal of the Academy of Natural Sciences.

Genus Ceraurus—*Green.*

C. Pleurexanthemas—*Green.* Fig. 10.

Clypeo postice arcuato, angulo externo in mucronem valde producto; oculis minimis remotis; postabdomine in spinam arcuatam acutam utrinque extenso.

PL. XIV.

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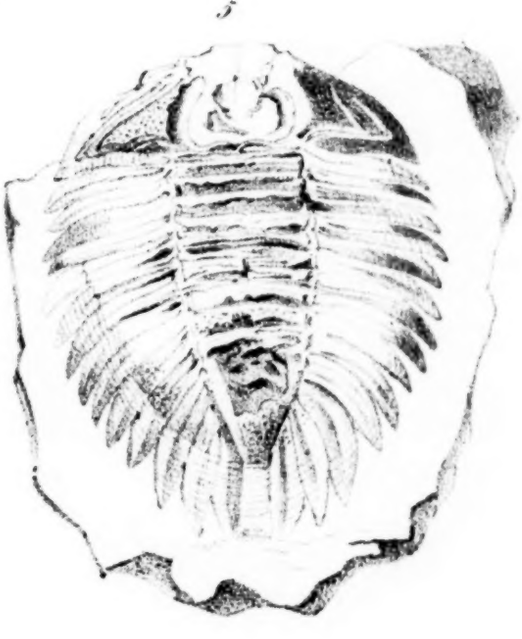
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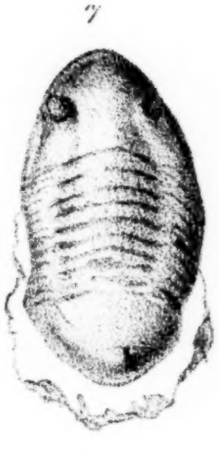
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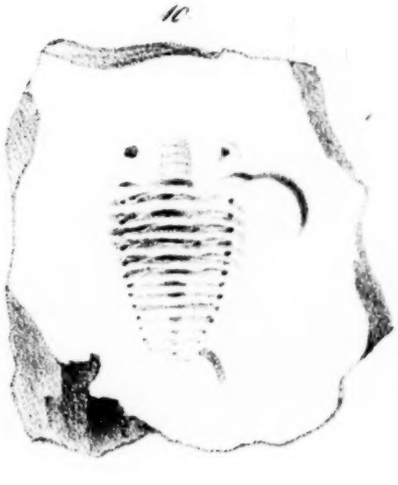
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Childs & Inman lith.

CONVERTIBILITY OF WHEAT INTO CHEAT OR CHESS.

THE opinion continues to be very much encouraged amongst agriculturists, that the heads of cheat or chess, which are often found in wheat fields, take their origin from seeds like those which they bear, and not from the seeds of wheat, which many insist are immutable and undegenerate in their nature. This opinion is a very natural and, perhaps, a very useful one to entertain, as it induces great vigilance on the part of the farmer in the selection of his wheat seed. Having practised farming upon a tolerably extensive scale during the most active part of my life, my opinions as to the immutability of wheat were long ago shaken. After attending to the selection of seed with the most scrupulous care, and with experimental views, I was too often disappointed when I had the greatest reason to entertain sanguine expectations in favour of the immutable system. Upon more than one occasion, too, when I had taken every possible precaution, and had seen the spring open upon a fine field, as I thought, of wheat in the grass, I had the mortification to find it shoot up *almost entirely* into chess. The friends of immutability told me the chess had eaten the wheat out, but they never told me how the chess got into the field, or why the wheat had not eaten it out, which I should much have preferred. However, I sometimes had a great crop of wheat, and perhaps the chess was eaten out upon these occasions.

Having had a liberal share of agricultural controversy, I am content to let others enjoy their opinions, however distant they may be from my own on such subjects, and do not wish to be thought desirous of encroaching upon a province, which now engages the attention of many able agricultural editors.

I have a fact, however, to communicate to my botanical and agricultural readers, which ought to have weight in a controverted matter of very great interest.

Whilst on a geological excursion this summer in Virginia, as the close of the wheat harvest; Mr. Conway, of Rapid Ann, Madison county, presented me with a plant of cheat or chess, which he had plucked up by the roots from one of his wheat fields. Mr. Conway is a gentleman farmer, well known for his intelligence and opulence, and his attention having been long drawn

to the appearance of cheat in his wheat fields, was in the habit of examining plants of this kind from time to time. The plant he exhibited, and which was but recently taken from the field, consisted of four stalks, not in the least broken, and as perfect as when they were growing in the fields. Each of these stalks bore a profusion of the heads of cheat, and nothing whatever that approached, in the least degree, to an ear of wheat. As far as the heads went it was a perfect specimen of cheat or chess. The plant, having been carefully drawn from the field, had all its roots attached to it, without any visible fracture, and in the most natural manner. Mr. Conway, however, drew my attention to the skin of the kernel of the seed from which this plant had proceeded, and which was attached to the radicle, in a situation quite distinct from the lateral roots. The skin was that of a kernel of wheat, and upon applying a microscope to it I found that it had been a kernel of wheat, and nothing else; not differing in the least from the skins of wheat seed as they are often found adhering to the radicle of wheat plants, bearing regular ears of wheat when the heads are well formed. This was the opinion of Mr. Conway, who declared himself satisfied, from the inspection of this plant, that, in this particular instance at least, *a kernel of wheat had produced a plant bearing four stalks with ears of cheat or chess.* Mr. Conway informed me that one or two of his neighbours had found similar plants this Summer, and had come to the same conclusion, that cheat could be produced from wheat seeds.

The evening before my interview with Mr. Conway, the apparent convertibility of wheat into cheat was the subject of a long conversation between Mr. Madison (under whose hospitable roof I found a most welcome head-quarters during my tour in Virginia) and myself. We had been old correspondents on agricultural subjects, and we entered into it *con amore.* That venerable man, who at the age of eighty-two preserves all the vigour of a highly polished and unrivalled mind, related to me the many experiments he had personally conducted in his garden at Montpelier, by sowing cheat to produce wheat, but all in vain, he had never succeeded in prevailing upon it to retract its perverse deviation from its type; and Mr. Madison had paid too much attention to the production of cheat in wheat fields, not to be impressed with the many strong reasons there were to suppose that

wheat, which belongs to the Gramineæ, could degenerate into a plant which approaches the grasses. He examined, on my return to his house, the plant which I brought from Mr. Conway's, and expressed himself satisfied that, in this particular instance, a kernel of wheat had produced a plant bearing heads of cheat.

I still possess this curious plant, and it will give me great pleasure to show it to any agricultural or botanical gentlemen who desire to be convinced that I have related the state of this plant faithfully. It appears to me, however, that if farmers would carefully remove plants of cheat at the proper season, after the heads are out, but whilst the stalks are yet green, that the controversy on this subject would soon cease. The single fact I have brought forward ought to have great weight, and I have no doubt that another season will give it all the support it may now appear to want.

I shall rely upon this fact at present, and shall not attempt to support it by any arguments drawn from the physiology of plants, or theories of vegetation. There are, however, some very important views, which bear upon the economy of Agriculture, and are within the scope of this work, which will probably be brought forward in the second volume of this Journal.

G. W. Featherstonhaugh.

THE EDITOR TO HIS SUBSCRIBERS.

I now present my readers with the closing number of the first volume. In returning my most sincere thanks to the patrons of this work, I must express a wish that it had been conducted in a manner more agreeable to them, but the various delays which have occurred in its distribution, have been more painful to myself than to any other person. They were occasioned by circumstances altogether beyond my control. The publisher with whom it was my misfortune to be connected, was highly recommended to me, but he abused the confidence that was reposed in him, and deceived every one. Under these circumstances, and seeing with pleasure that the work was rising in the public estimation, I determined to finish the first volume at my own expense, and distribute it gratuitously to the subscribers, rather than that they should be wronged by the sudden

discontinuance of a work for which they had paid. I have now redeemed the pledge given to that effect.

Apart from the pecuniary losses sustained by the conduct of the publisher alluded to,—who in numerous instances after he had received the subscription money, ceased to forward the work—I have been reproached from numerous quarters and subjected to repeated postages, for the irregular manner in which the work was forwarded previous to the bankruptcy of the publisher. It was thought that sufficient steps had been taken to inform the subscribers how little any reproaches were deserved on this score: now that the volume is completed I trust they will do me justice.

There have been several subscribers since this journal became the sole property of the editor, he will be greatly obliged to them to remit him the amount due to him. He requests the favour also of all those who have acted as agents for the distribution of the journal, to remit him whatever may be due. He hopes that none of the persons indebted for this journal will put him to the trouble of reminding them again, of what ultimately they must do. As to that foreign agent who was originally employed by the publisher at the establishment of the journal, and who by flattering letters has since decoyed the editor into forwarding so many packages of this work, he is informed that a silence of six months on his part, after repeated letters written to him, has left the editor a very bad opinion of him, which he may be tempted to express in a manner that may be very injurious to him, if time should prove him to deserve it, and a very little time now remains to bring his conduct to the test.

The editor returns his most sincere thanks to his correspondents: it would be superfluous to name them here. The names of the most distinguished of them are found in the body of the work. When the heats of summer shall have past over, and when we shall be able, under the favour of divine Providence, to return, in a healthy atmosphere, to our wonted occupations, the editor proposes to resume the publication of his journal, upon a more enlarged plan. He proposes to have a geological section, and a plate of American fossils in each number, with appropriate descriptions of them. He has been for some time considering how to introduce the information which has been collected concerning the various mining districts of the United States, and the

most economical mode of working them, in the most advantageous manner: with this view, he has established correspondencies with practical miners and metallurgists, and intends publishing in his journal memoirs and illustrations connected with practical mining.

In relation to the gold mines of the United States, he has acquired a great mass of information by his correspondents and by personal investigation, and it is his intention to add greatly to it, by an excursion to the gold districts during the approaching autumn.

In all those cases where his subscribers shall not have signified their intention to withdraw their names, the work will be again forwarded to them when it is resumed.

G. W. Featherstonhaugh.

FOSSIL REMAINS OF A MASTODON, FOUND IN TENNESSEE.

Extract of a letter from Lt. Col. Long, U. S. E., to the Editor.

Blountsville, Tennessee, Aug. 3, 1832.

I visited a locality yesterday, on my road from Knoxville to this place, in company with J. S. Gaines, Esq., where portions of the skeletons of a Mastodon have lately been found. It is a marshy tract of a few acres, at the base, and on the south side of Chestnut or Eden's ridge, (Walker's mountain,) surrounded by hills of a considerable height. The rocks in the vicinity, as well as in the marsh, are limestone, in stratified beds, highly inclined and dipping to the S. S. E. The proprietor of the ground, a Mr. Bridewell, informed me that the beds below the marsh are horizontal limestone. The skeleton was found by him in digging for tan-vats, of the depth of about three feet below the surface. The bones soon crumbled and fell to pieces on exposure to the atmosphere, which was also the case with a very large tusk. The diameter of the tusk at the largest end was *ten inches*: the circumference, at the distance of four feet from the butt end, was twenty-three inches: the length of the cavity occupied by the tusk, or that portion of it which was dug out, was by measure eight feet. A piece of the smaller end of the tusk was left in the ground, and was not included in the measurement just mentioned.

Parts of three teeth were sound, one of which was taken out connected with a large fragment of the lower jaw. A portion of one of these teeth was presented to me by my friend Mr. Gaines, but like the other parts, it is, except the enamel, in a state of complete disintegration; they all crumbled on exposure to the air. Mr. Gaines has promised to exert himself to procure as many parts of the skeleton as he can, and to forward them to me. I shall present them, together with the tooth now in my possession, to our Geological Society for the state of Pennsylvania.

SCIENTIFIC MEMORANDA.

THE delay in the distribution of this Number has enabled us to add the following Notices.—ED.

Death of Cuvier.—We have to record the death, by paralysis, on the 15th May, 1832, of a man pre-eminent as a naturalist, and as a reformer in natural science, whose fame is beyond the reach of detraction, and whose memory will be revered by all who cultivate nature and cherish sound philosophy, whilst civilization shall endure. He was to his eventful times, what Aristotle was to his own: yet in this he surpassed him—that his works maintain the first place in the literature of every country. It is somewhat to be admired that each of these illustrious naturalists lived under the two monarchs, whose names must ever be found in the most conspicuous page of history, as military leaders, and ardent protectors of scientific men. We mean Alexander and Napoleon.

Expedition of Capt. Ross to the Arctic Regions.—In his Annual Address to the Linnæan Society, lord Stanley observed, that the name of Capt. Ross was included in the list of deceased fellows; but he expressed a hope that he might still be alive, although no accounts had been received of him for two years. From intelligence lately brought to this country, an English vessel had been discovered on the Esquimaux coast embedded in the ice, which is supposed to be the same in which Capt. Ross and his intrepid companions went out.

Royal Geographical Society of London.—A communication was made and received with great satisfaction, that Dr. Richardson, the able and intrepid companion of Sir John Franklin in his polar expeditions, had volunteered his services to his Majesty's government to conduct an expedition from the Hudson's Bay Company's settlements to the Northern Ocean, in search of Capt. Ross; and that sanguine hopes were entertained that this offer would be accepted, and a small expedition fitted out accordingly.

Royal Institution of London.—Professor Ritchie exhibited the arrangement he had made for obtaining the spark from the magnet, and exploding gases by its means. The experiment was very successfully performed several times. Mr. Farraday showed the arrangement he had adopted for obtaining the spark, which he rendered beautifully visible. The magnet he used was the natural loadstone belonging to Professor Daniell.

On the Crispations of Fluids lying on vibrating surfaces.—Since the reading of his paper, in 1831, before the Royal Society, on certain forms assumed by particles on vibrating surfaces, Mr. Farraday pursued the investigation, and extended the principles in explanation of the curious configurations observed by Orsted and Wheatstone, on the surfaces of fluids on vibrating plates. By gradual experiment he connected these minute appearances with one form of stationary undulations, and showed that the direct motion of the plate to and fro was with respect to the fluid converted into a reciprocating lateral motion; the fluid dividing, as it were, into quantities, which, on rising, formed heaps, and on falling gave origin to a similar set of interposed heaps, which again passed back into the first set, and so on continually. Various forms of vibrations were shown; thus, if a cylinder just touching the surface of the water be made to vibrate up and down rapidly, radii form all around it to a great extent, as if elevation and depressed lines were passing directly outwards. Mr. Farraday then considered the possibility of similar effects taking place in elastic media surrounding the vibrating plate, in which case the elasticity allowed of what could only take place in dense inelastic media by a suddenly terminated

surface; and on the supposition that the undulatory theory of light was the true view of its phenomena, he remarked that the present effect pointed out how the direct vibrations of the luminous body might be supposed to become converted into lateral vibrations, and so produce that particular condition of the luminous ether which Young and Freswell have shown would account for all the phenomena of palarised light.

Birmingham and London Railway.—This great undertaking will be a monument of the enterprise of the age. Not so much on account of the distance between the two cities, which is one hundred and twelve miles and a half, but on account of the skill with which the line has been established. The engineers appear to have availed themselves fully of the experience which previous undertakings have produced in every branch of railway motion. There are to be two lines of tracks, one leading to London, the other to Birmingham, and the general line has been so planned as to avoid encroachments upon private property, that were of an unwelcome nature. The tunnels amount to ten in number, one of which will be a mile and a quarter long, others will be less than a quarter of a mile. In consequence of this judicious plan of forcing an approximation to the most practicable system of slopes, the inclination never exceeds one in 330, or 16 feet in a mile of 5280 feet. Upon such a level it is probable that steam locomotion may be permanent and economical. The rise of one foot in 96 feet, or 55 feet in a mile of 5280 feet, on the Whiston and Sutton inclined planes, has been very trying, and has put the Liverpool Company to great expense. It is now said that this last company proposes to abandon steam locomotive power, and to substitute stationary or animal power, or both. It is very clear that the system which requires the least repair, although involving additional capital, is the true one to pursue. Things must be made that they may last, and not that they may eternally be tinkered. Of the twenty-four locomotives belonging to the Liverpool and Manchester Company, seldom more than six are in operation, the rest are mending. It is stated, too, that the annual repairs on each of their locomotives amounts to £1500 sterling. These are important lessons for all railways to be constructed in the United

States. The London and Birmingham railroad is estimated to cost about £22,000 sterling a mile, or £2,500,000 for the whole distance.

The duke of Sussex.—The evening parties of his royal highness, at Kensington palace, are attended by distinguished assemblages of rank and talent. The lord Chief Justice of the court of King's Bench, the judges, the bishops, the duke of Devonshire, the earl of Munster, &c. &c. But the noblemen are not more conspicuous than the scientific and literary men and artists, all eminent in their professions, and in the higher pursuits of intellectual life. Objects of great interest are placed in various rooms, mechanical inventions, demonstrations in natural history, &c. An apparatus showing distinctly the circulation of sap in plants, has attracted much attention there.

The cause of refinement and general improvement must gain by such meetings, and far beyond what appears on the mere surface. Where so much knowledge, and genius, and liberality come into contact, it is impossible that the result should be barrenness.

Tapir, or Danta.—Sir Robert Ker Porter has forwarded to the Zoological Society of London, a fine specimen of this animal. It was brought when young and wild, under an escort, from over the lofty mountains that lie between its native plains near Calaboda, and the city of Caraccas. He has now had it three years in a tamed state. It is difficult to take it alive in its wild state when at a mature age, from its great strength and sagacity. The present one is very docile.

Sub-aquatics.—An individual was to be seen the other day in the river, near Battersea, and literally *in the river*, for he was trying an experiment of submerging himself by means of an apparatus, and walking about at the bottom of the water. We were not near enough to ascertain the exact nature of his means, but they appeared to be simple and efficacious. A helmet covered his head, with a zone of glass round the eyes, so that every thing below is distinctly visible. Connected with this was a garb which enveloped his body down to the waist, where it

was fastened, and all above it kept dry. A pipe rises to the surface for the air, how managed we cannot say; but we were told that the design had been found to answer both in the river (of which we had evidence) and in the sea.—*London Literary Gazette, May*, 1832.

Geological Society of London, and Megatherium from Buenos Ayres.—This Society held their last meeting for the season, on Wednesday the 13th June, at their rooms, Somerset House. The earl of Munster, and capt. Robe, R. E. were admitted as fellows, and took their seats. Several other gentlemen were elected.

Some observations on the London clay of the Highgate archway having been read, the remainder of the evening was occupied by the description of certain splendid remains of a "Megatherium," collected and brought home by Woodbine Parish, Esq., his majesty's late Chargé d'affaires at Buenos Ayres, and found in the Rio Solado, about eighty miles distant from that place.

A memoir, explanatory of the remains of this huge edentatous animal, by Wm. Clift, Esq. F. G. S., &c. was then read, in which the author pointed out many parts, particularly the tail, as occurring among these remains, which are wanting in the well known skeleton at Madrid. In the discussion which followed, the rev. Dr. Buckland gave a most instructive and spirited exposition of the supposed habits of this giant of the "edentata;" showing, that while the bulk of many of its limbs far exceeds that of the corresponding parts of the elephant, the animal, judging from its Osteology, was closely related to the sloth and to the ant eater.

Numerous specimens of other fossil remains were exhibited; the most remarkable donation was a cast of the "Plesiosaurus dolichodeirus," presented by Edward Hawkins, F. G. S., being the most perfect specimen of this species of Saurian which has ever been discovered.

In allusion to the Zoological subjects which were brought before the society, all of which had been so ably expounded by Cuvier, the president took occasion to express the deep sense entertained by all geologists, of the irreparable loss they had sustained in the death of that illustrious naturalist.

The first Wollaston gold medal was exhibited; and it was

felt that the execution of the bust of that great philosopher and benefactor to the Geological Society, reflected much credit on the artist, Mr. Wyon.

The apartments were extremely crowded; many persons could not obtain entrance into the meeting room.

Among those present were, the marquis of Northampton, lords Munster, Milton, Cole, &c. &c. sir Philip Grey Egerton, sir Rufane Donkin, sir Astley Cooper, sir Thomas Phillips, sir Charles Clarke, the dean of Carlisle, general Straton, Messrs. Greenough, Tatton Egerton, Francis Bailey, Brunel, Lyell, major Shadwell Clarke, Mr. Copeland, col. Sykes, rev. W. Vernon Harcourt, Mr. Woodbine Parish, &c. &c.

The society adjourned to Wednesday, November 7, 1832.

British Association for the Advancement of Science.—Great Meeting at Oxford, June 18, 1832.—About four hundred members of the Association met, the 19th June, in the morning, in the theatre of the university. Lord Milton resigned the chair, and the rev. Dr. Buckland, Professor of Geology at the University, was installed as president for the ensuing year.

Professor Airy, of Cambridge, read a Report on the State of Astronomical Science; and a paper, by J. W. Lubbock, on the Theory of the Tides, was, in his absence, read by professor Whewell.

ERRATA.

Page	Line	
45,	1,	for *Crolalus*, read *Crotalus*
61,	14,	*lies* read *lie*
248,	36,	*one* read *onc*
349,	33,	*excavation* read excavations
252,	5,	*ardusino* read *arduino*
252,	18,	*Fuschel* read *Fuchsel*
255,	24,	*their* read *these*
257,	14,	*natura* read *naturæ*
277,	25,	*places the* read *places. The*
483,	23,	*the superincumbent power* read *the power*
504,	10,	*aperi-ad-untur* read *aperiuntur*
515,	35,	*magnificio*, read *magnifico*

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CONDUCTED BY

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Fellow of the Geological Society of London; Member of the American Philosophical Society of Philadelphia; of the New York Lyceum of Natural History; of the Academy of Natural Sciences of Philadelphia, &c. &c. &c.

MARCH, 1832.

TO BE CONTINUED MONTHLY.

Philadelphia:

PUBLISHED BY THE EDITOR.

SUBSCRIPTIONS RECEIVED AT MR. JUDAH DOBSON'S, 108 CHESNUT STREET.

1832.

Price, $3 50 *per annum, payable in advance.*

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Entered according to the Act of Congress, in the year one thousand eight hundred and thirty-two, by *G. W. Featherstonhaugh*, in the Clerk's Office of the District Court of the United States, in and for the Eastern District of Pennsylvania.

TO SUBSCRIBERS.

Sir,—The delay in the publication of this number, has been caused by the recent failure of the late publisher, Henry H. Porter.

That individual, after collecting the annual subscription for this Journal, wherever he was able to do so, has made an assignment of his effects, without the knowledge of the Editor, and without providing him with any means to finish the first volume, of which one-third part remained unpublished, at the time of his failure.

The Journal was thus brought to a stand. Considering, however, that those who had already paid their money into the hands of the late publisher —relying upon his supposed honesty—could not remember with satisfaction, a work, in the management of which they had been wronged, and which owed its existence to myself, I have determined to do justice to the subscribers, and to finish the first volume at my own expense.

The present number therefore is issued, as a regular continuation of the work, and as an earnest of my strong desire to gratify the subscribers, and to sustain a Journal, the ultimate success of which I cannot doubt.

I have no expectation of indemnification for the great expenses I have now to incur, but from an increased subscription, and I respectfully ask of you to procure me additional names from among your numerous friends.

Those who have not paid for the ensuing year, will please remit the amount either to the Editor, or on his account to Mr. Judah Dobson, 108 Chesnut street, Philadelphia, who will receive subscriptions.

Henceforwards the publication and distribution of the work will be superintended by myself, to whom correspondents will please, in future, address all their communications. G. W. FEATHERSTONHAUGH.

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Unfriendly insinuations too, of the Editor's want of ability for his task, have been circulated in quarters where he is little known. *Spargere voces ambiguas*, is a base game, and is sure to re-act in the end, upon those who indulge in it. If the Journal could only find its way into the hands of those who have thus been improperly prejudiced, the Editor would rely with satisfaction upon the result.

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COMMUNICATION FROM THE PRESIDENT OF THE GEOLOGICAL SOCIETY OF LONDON, AND OTHER NATURALISTS.

London, June 18, 1831.

My Dear Sir,—We, your undersigned friends in England, are happy to learn that you propose to establish a new periodical work in the United States, which, in embracing all subjects connected with the natural history of America, is to be specially devoted to the accumulation of geological facts and phenomena.

Knowing your zeal and ability, we have great hopes that a work so directed, will meet with every encouragement in your country, and we are certain that tcannot but be of service to the cause of science in general.

We shall at all times be desirous of aiding you with any communications in our power, and we subscribe ourselves,

Yours very faithfully,

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Davies Gilbert, *Vice President Royal Society.*
W. D. Conybeare, F. R. S. F. G. S. &c.
A. Sedgewick, F. R. S. F. G. S. &c. *Fellow of Trinity College, Cambridge.*
Wm. Buckland, D. D. F. R. S. &c. &c. *Christ Church College, Oxford.*
George Bellas Greenough, F. R. S. &c. &c.
Charles Stokes, F. R. S. &c. &c.

P. S.—I cannot refrain in particular on my own part, from expressing the desire which I feel for the appearance of the proposed publication, as likely to conduce, in the most important points, to the effective progress of geology; to ascertain in detail the suite of formations, and the series of organic remains distinguishing them in a new continent, so widely separated from the old, and embracing such a range of various climate: so to compare the phenomena with those of Europe, has ever appeared to me the most material desideratum in geology; for we may be sure that any analogies which are common to localities geographically so distant, and placed under physical conditions so distinct, are, in truth, analogies belonging generally to the whole globe; and thus we shall obtain data adequate f the foundation of a general geological theory.

Well acquainted with the attention you have paid to the formations on this side the Atlantic, I am convinced that the execution of this task, cannot fall into more competent hands.

W. D. CONYBEARE.

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Philadelphia.

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American Geology. The geology of the United States has been so imperfectly explored and determined, that we confess it would have given us the most sincere pleasure, had the late Mr. Girard, of Philadelphia, left among his princely legacies the interest of $200,000 forever to be expended in geological explorations and surveys. This sum of money would have enabled two or three scientific gentlemen to enter upon a systematic and efficient course of labour that might develope the geological treasures of our gigantic continent, and add incalculably to the perfection and beauty of this noble science. The intimate connexion between geology and mineralogy and agriculture would have justified a bequest of this magnitude, sufficiently guarded by trustees or some scientific institution. The geology of America, like the features of the continent, is rich and grand and diversified, almost beyond comparison—and yet we have but one journal devoted principally to this science in the country. We refer to "the Monthly American Journal of Geology," published in Philadelphia, and edited by the accomplished and persevering G. W. Featherstonhaugh, Esq. This periodical is in the first year of its existence, yet we hope it has made a beginning that shall lead to results as auspicious as its field of labour is rich and productive.—*Badger's Messenger.*

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Journal of Geology. We have, at different times, lent our humble efforts to bring into notice in this quarter, the very excellent Geological Monthly, under the conduct of Mr. Featherstonhaugh. It is such a work as should find favour with our young lovers of science, and if proper means were taken, fully to develope its design and character, it must receive from New England a large accession to its list of patrons.—*Boston American Traveller.*

The March number, (being the 9th) of the Monthly American Journal of Geology and Natural Science, has been issued. The editor, Mr. Featherstonhaugh, although not responsible to the subscribers, has undertaken at his own risk to complete the volume, and furnish it without further charge to those who have paid for it in advance. The liberality and public spirit of the editor at this juncture, give him a peculiar claim to the encouragement of the public, in addition to that derived from the sustained excellence of the work.—*Baltimore Times.*

Mr. Featherstonhaugh's Journal of Geology, after the severe shock it has received, has revived, as we are truly happy to see in the March number now before us. The powerful recommendations from so many quarters in favour of this interesting Journal, were not wanting to us individually; few persons have the inspection of more periodicals than ourselves, and we must say, that we have often been struck with the general approbation it has received: indeed, without an exception, as far as we know.

All men do not perform their promises after the manner of the editor of this Journal; rather than that his subscribers should be wronged, he promised that justice should be done to them, even if it were at his own expense; and this he has done, and generously too, for the March number is one of the best we have seen, and has a very beautiful plate, from an original drawing, of the Natural Bridge in Virginia.—*U. S. Gazette, Philad.*

We have slightly examined five numbers of this work. The title, above recited, is so full as to need nothing in addition, descriptive of the editor's plan. It appears to us that he will lose nothing of his scientific and literary reputation by the execution of this periodical, which, as far as practicable, in the limits of an octavo pamphlet, fulfils the promises of the prospectus. An exceedingly well written paper, entitled "An Epitome of the progress of Natural Science," has been continued through several numbers, which we presume to have come from the pen of the editor himself. When such works as this periodical, find support, and are extensively circulated, it may be inferred that the spirit of inquiry is abroad, and the number of scientific students increasing.—*New England Magazine.*

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THE

MONTHLY AMERICAN JOURNAL

OF

GEOLOGY

AND

NATURAL SCIENCE;

EXHIBITING THE PRESENT STATE AND PROGRESS OF KNOWLEDGE IN

ZOOLOGY, BOTANY, MINERALOGY, COMPARATIVE ANATOMY, CHEMISTRY, METEOROLOGY, PHYSICAL NATURAL AGENTS, AND THE ANTIQUITIES AND LANGUAGES OF THE INDIANS OF THIS CONTINENT.

CONDUCTED BY

G. W. FEATHERSTONHAUGH, Esq.

Fellow of the Geological Society of London; Member of the American Philosophical Society of Philadelphia; of the New York Lyceum of Natural History; of the Academy of Natural Sciences of Philadelphia, &c. &c. &c.

MAY, 1832.

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Entered according to the Act of Congress, in the year one thousand eight hundred and thirty-two, by G. W. Featherstonhaugh, in the Clerk's Office of the District Court of the United States, in and for the Eastern District of Pennsylvania.

MONTHLY AMERICAN JOURNAL OF GEOLOGY AND NATURAL SCIENCE.

The public has already been made acquainted with the circumstances which produced a temporary suspension of the publication of this Journal. The Editor felt that the most satisfactory atonement that could be made to his subscribers in favour of this work, for the dishonourable conduct of his late publisher H. H. Porter, was to finish the first volume, and present it to those who have paid in anticipation, without any further charge, and at his own expense. This has been partly done by the delivery of the numbers for March and April. Those for May and June, which will complete the first volume, are now in progress.

For the pecuniary sacrifices he has conceived himself called upon to make, he has no prospect of indemnification but from an increased subscription, which he respectfully asks for from those who feel interested in the cultivation of American Natural History.

An examination into the affairs of his Journal, having been forced upon him by the failure alluded to, he has discovered the extent of the injury it has received from the culpable negligence of the late publisher. Having had no agency, hitherto, in the distribution of the Journal, he could offer no immediate satisfaction to the numerous complaints which have been addressed to him from subscribers and agents, of various numbers not having been received by them: he has, however, endeavoured to comply with their wishes to have their sets completed. In future, all the numbers will be forwarded through the post office—until otherwise instructed—as the most certain channel.

The Editor has also discovered that owing to misrepresentations from interested and unfriendly persons, the circulation of his Journal has been very much limited. A few copies of the work have been regularly forwarded to some principal bookseller in each of the large towns of the United States, and almost in every instance the work has found its way into the hands of one or more subscribers. Yet a respectable publisher in New-Haven, Connecticut, in acknowledging the receipt of ten copies of every number of the Journal, adds that it is not owing to "*any neglect or want of exertion*" on his part, that he has not a single subscriber in that town: the inference of course is, that it is owing to something else. So that a work which has hitherto been stamped with general approbation, and which is devoted to American Geology and American Natural History, has not been permitted to have a single subscriber in New-Haven, the pretended seat of an American Geological Society. This fact, which was unknown to the Editor until within a short period, has proved to him, that active exertions are necessary to secure even fair dealing for his Journal.

Unfriendly insinuations too, of the Editor's want of ability for his task, have been circulated in quarters where he is little known. *Spargere voces ambiguas*, is a base game, and is sure to re-act in the end, upon those who indulge in it. If the Journal could only find its way into the hands of those who have thus been improperly prejudiced, the Editor would rely with satisfaction upon the result.

These various unfavorable circumstances, which have, more or less, been brought to bear against the circulation of this Journal in some parts of the United States, have made it imperative upon the Editor to endeavour to undeceive the public, where it is necessary, and to place the Journal upon a substantial foundation. It is for these reasons, and not from the habit of indulging in boasting, that the Editor yields to the advice of some of his friends; and to favour the interests of his Journal, does a violence to his own taste,

by publishing the following recommendations, which form only a part of a very numerous selection. He trusts that these unsolicited evidences of his competency for the task he has undertaken, will have a tendency to undeceive those, who, not knowing him, have been induced to listen to the persons who are interested in injuring the success of his Journal.

Until further notice, the publication and distribution of this Journal, will be superintended by the Editor, to whom correspondents will please, in future, address all their communications.

The publication of the second volume will commence on the first of July next. It has been found necessary to enlarge it. It will contain at least 100 more pages, with additional plates and illustrations. The price to subscribers will be five dollars, payable in advance.

G. W. FEATHERSTONHAUGH.

Philadelphia, May 20, 1832.

COMMUNICATION FROM THE PRESIDENT OF THE GEOLOGICAL SOCIETY OF LONDON, AND OTHER NATURALISTS.

London, June 18, 1831.

My Dear Sir,—We, your undersigned friends in England, are happy to learn that you propose to establish a new periodical work in the United States, which, in embracing all subjects connected with the natural history of America, is to be specially devoted to the accumulation of geological facts and phenomena.

Knowing your zeal and ability, we have great hopes that a work so directed, will meet with every encouragement in your country, and we are certain that it cannot but be of service to the cause of science in general.

We shall at all times be desirous of aiding you with any communications in our power, and we subscribe ourselves,

Yours very faithfully,

Roderick Impey Murchison, *President of the Geological Society of London.*
Davies Gilbert, *Vice President Royal Society.*
W. D. Conybeare, F. R. S. F. G. S. &c.
A. Sedgewick, F. R. S. F. G. S. &c. *Fellow of Trinity College, Cambridge.*
Wm. Buckland, D. D. F. R. S. &c. &c. *Christ Church College, Oxford.*
George Bellas Greenough, F. R. S. &c. &c.
Charles Stokes, F. R. S. &c. &c.

P. S.—I cannot refrain in particular on my own part, from expressing the desire which I feel for the appearance of the proposed publication, as likely to conduce, in the most important points, to the effective progress of geology; to ascertain in detail the suite of formations, and the series of organic remains distinguishing them in a new continent, so widely separated from the old, and embracing such a range of various climate: so to compare the phenomena with those of Europe, has ever appeared to me the most material desideratum in geology; for we may be sure that any analogies which are common to localities geographically so distant, and placed under physical conditions so distinct, are, in truth, analogies belonging generally to the whole globe; and thus we shall obtain data adequate for the foundation of a general geological theory.

Well acquainted with the attention you have paid to the formations on this side the Atlantic, I am convinced that the execution of this task, cannot fall into more competent hands.

W. D. Conybeare.

To G. W. Featherstonhaugh, Esq.
Philadelphia.

Extracts, from English and American notices of the Monthly American Journal of Geology and Natural Science.

"Of the design, as expressed in the prospectus, which contains some candid remarks on the state of the cultivation of natural history in the United States, we highly approve. Of the execution also, we are happy to express our approbation. Desirous of seeing our transatlantic brethren the emulous yet generous rivals of the cultivators of science in Britain, in every department of human knowledge, Mr. Featherstonhaugh's Journal has our most cordial wishes for its success.

Again we express our cordial wishes for the prosperity of this work, which we are convinced will perform very important services to science."—*Philosophical Magazine and Annals of Philosophy, London, October*, 1831.

"It affords us the greatest satisfaction to find, that it is precisely in this laudable spirit of christianized philosophy, that the *Monthly American Journal of Geology and Natural Science*, has been undertaken by its able conductor. The first number of that work now lies before us, and if the promises which it announces be fulfilled even to a limited extent, it cannot fail to collect very valuable materials towards a complete theory of the earth. It is the avowed intention of the editor to ascertain, as far as it is possible, a common ground for the theologian and geologist to stand comfortably upon, one which brings prejudice neither to religion nor science; and to inculcate that one of the great objects of existence is 'the study of the Creator through his works.' We need hardly add, that such a publication as this has our most cordial wishes for its success."—*London Monthly Review, November*, 1832.

We congratulate the lovers and cultivators of science on the commencement of a Journal devoted exclusively to natural history, and more particularly to that important branch of it, geology, and heartily wish for it a liberal patronage. The conductor is a gentleman, who, it is understood, has given much attention to natural history, and is advantageously known by his lectures on geology, so numerously attended and favorably received a few months ago.—*Poulson's American Daily Advertiser.*

The *Monthly American Journal of Geology and Natural Science*, is conducted by G. W. Featherstonhaugh, Esq. of Philadelphia. There is no individual more capable of conducting such a work with credit to himself, and to the literary reputation of the country, than Mr. F.: the unquestionable talent and judgment he displays through the pages of this new Journal, give it a claim to the patronage of the public which must ensure its entire success.—*Baltimore Gazette.*

The *Monthly American Journal of Geology and Natural Science* is conducted by Mr. Featherstonhaugh, whose lectures on geology last winter won him golden opinions from a large and highly respectable class. This publication forms an important accession to our periodical literature.—*Philadelphia Saturday Courier.*

The *Monthly American Journal of Geology and Natural Science* is under the editorial conduct of G. W. Featherstonhaugh, Esq. a gentleman of acknowledged talent, and untiring industry. We earnestly recommend it to the notice and patronage of the public.—*Boston American Traveller.*

The *Monthly American Journal of Geology* is conducted by Mr. Featherstonhaugh. We have read all the articles contained in the number before us, and are satisfied with them. The contributions of the editor are well written, as are also, those of his correspondents.—*Boston Evening Transcript.*

Monthly American Journal of Geology and Natural Science. Mr. Featherstonhaugh, well known for his devotion to the study of natural science, and whose lectures during the past winter, were exceedingly popular, has commenced a publication under this title. The first number is rich in the variety of its contents. A periodical peculiarly dedicated to such subjects was wanted, and could not be in better hands.—*New York Commercial Advertiser.*

The *Monthly American Journal of Geology and Natural Science.* We wish Mr. Featherstonhaugh, who is favourably known to the public as a writer and man of science, success in his bold but useful undertaking, and we take pleasure in recommending it to the patronage of the public.—*Morning Courier.*

We shall to-morrow publish the prospectus of "*The Monthly American Journal of Geology and Natural Science.* In the place of commendation, we shall only state that it will be conducted by Mr. Featherstonhaugh.—*United States Gazette.*

Journal of Geology. The supervision of a gentleman so favourably known to the public as Mr. Featherstonhaugh will doubtless secure for the work an ample patronage.—*Connecticut Mirror.*

The *Monthly American Journal of Geology and Natural Science* is conducted by Mr. Featherstonhaugh. The well established reputation of the editor will doubtless secure an extensive and permanent support.—*Boston Traveller.*

Monthly American Journal of Geology. A highly valuable and interesting periodical bearing this title, has been commenced in Philadelphia by Mr. Featherstonhaugh. He has deservedly acquired a high reputation for scientific attainments, and his style of communication is strikingly pure and appropriate.—*Miner's Journal.*

We have received the first numbers of the *Monthly American Journal of Geology and Natural Science.* Mr. Featherstonhaugh has a wide notoriety, and the amount and value of his scientific attainments are as well known to the public as to us. We feel willing to trust to the reputation of the editor for the merit of the publication.—*Connecticut Journal.*

American Geology. The geology of the United States has been so imperfectly explored and determined, that we confess it would have given us the most sincere pleasure, had the late Mr. Girard, of Philadelphia, left among his princely legacies the interest of $200,000 forever to be expended in geological explorations and surveys. This sum of money would have enabled two or three scientific gentlemen to enter upon a systematic and efficient course of labor that might develope the geological treasures of our gigantic continent, and add incalculably to the perfection and beauty of this noble science. The intimate connexion between geology and mineralogy and agriculture would have justified a bequest of this magnitude, sufficiently guarded by trustees or some scientific institution. The geology of America, like the features of the continent, is rich and grand and diversified, almost beyond comparison—and yet we have but one journal devoted principally to this science in the country. We refer to "the Monthly American Journal of Geology," published in Philadelphia, and edited by the accomplished and persevering G. W. Featherstonhaugh, Esq. This periodical is in the first year of its existence, yet we hope it has made a beginning that shall lead to results as auspicious as its field of labor is rich and productive.—*Badger's Messenger.*

Journal of Geology. We have, at different times, lent our humble efforts to bring into notice in this quarter, the very excellent Geological Monthly, un-

der the conduct of Mr. Featherstonhaugh. It is such a work as should find favour with our young lovers of science, and if proper means were taken, fully to develope its design and character, it must receive from New England a large accession to its list of patrons.—*Boston American Traveller.*

The March number, (being the 9th) of the Monthly American Journal of Geology and Natural Science, has been issued. The editor, Mr. Featherstonhaugh, although not responsible to the subscribers, has undertaken at his own risk to complete the volume, and furnish it without further charge to those who have paid for it in advance. The liberality and public spirit of the editor at this juncture, give him a peculiar claim to the encouragement of the public, in addition to that derived from the sustained excellence of the work.—*Baltimore Times.*

Mr. Featherstonhaugh's Journal of Geology, after the severe shock it has received, has revived, as we are truly happy to see in the March number now before us. The powerful recommendations from so many quarters in favour of this interesting Journal, were not wanting to us individually; few persons have the inspection of more periodicals than ourselves, and we must say, that we have often been struck with the general approbation it has received: indeed, without an exception, as far as we know.

All men do not perform their promises after the manner of the editor of this Journal; rather than that his subscribers should be wronged, he promised that justice should be done to them, even if it were at his own expense; and this he has done, and generously too, for the March number is one of the best we have seen, and has a very beautiful plate, from an original drawing, of the Natural Bridge in Virginia.—*U. S. Gazette, Philad.*

We have slightly examined five numbers of this work. The title, above recited, is so full as to need nothing in addition, descriptive of the editor's plan. It appears to us that he will lose nothing of his scientific and literary reputation by the execution of this periodical, which, as far as practicable, in the limits of an octavo pamphlet, fulfils the promises of the prospectus. An exceedingly well written paper, entitled "An Epitome of the progress of Natural Science," has been continued through several numbers, which we presume to have come from the pen of the editor himself. When such works as this periodical, find support, and are extensively circulated, it may be inferred that the spirit of inquiry is abroad, and the number of scientific students increasing.—*New England Magazine.*

We are glad to find that our fears as to the success of this valuable Journal are dispelled by the appearance of the ninth number. The delay in the publication of this number is accounted for by the failure of the former publisher. We trust that the able and accomplished editor will have no cause to regret that he has determined to finish the volume at his own expense.

Of the ultimate success of the work there can be little doubt, if it continues to exhibit the science and independence which now distinguishes it. The reputation of Mr. Featherstonhaugh, as a man of science and letters has been long established both in this country and in Europe. The articles from the pen of the editor are written with purity and force, and it may be confidently anticipated that unimportant and incorrect communications will not be admitted, nor the pages of the Journal be disfigured by speculations discreditable to American science.

"The leading character of this work is geological, and it may be considered as devoted to the exposition of the geology and natural history of this continent; and to elementary instruction, concerning the principles and details of these important branches of knowledge." In this it differs from the "American Monthly Journal of Science and Arts," which is "a repository for papers of every description."—*Cambridge Amer. Monthly Review.*

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